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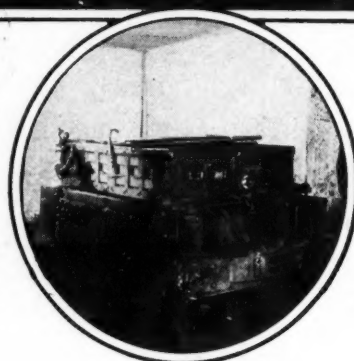


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The coal has been shot down but the miner can't load it until he gets an empty. That's where you will appreciate the dependability of Exide-Ironclad Batteries. When an Exide-Ironclad is in the gathering motor, miners know that the delay, if there is one, isn't caused by the battery. An Exide-Ironclad is so ruggedly built that it stays on the job day in and day out without causing trouble or needing repairs.



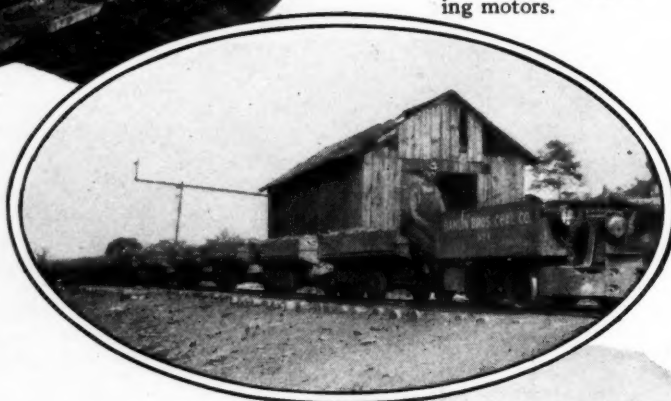
Here's what a good haulage system will do—hustle the loads out faster than the weigher can send them over the tippie, and hustle the empties in faster than the miners can load them. Of course, where such speed as this is shown, you will find Exide-Ironclad Batteries in the gathering motors.



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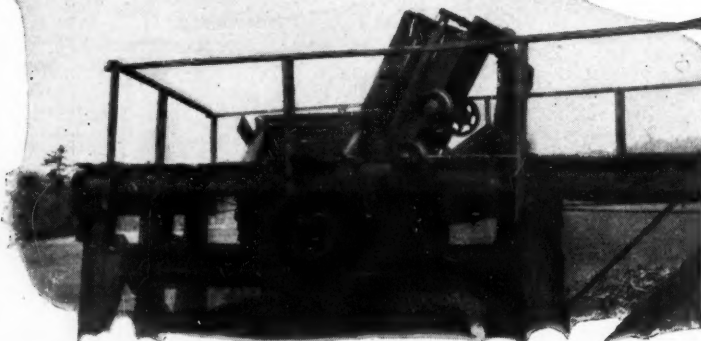


No matter how long and heavy the trip or how steep the grade, an Exide-Ironclad Battery usually walks away with its load. This battery always has extra power in reserve, and when needed it can deliver that power faster than usual.



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## Nine and a Half Cubic Yards In a Single Bite

At its Cuba plant in Illinois, the United Electric Companies is probably using the largest shovel in the world. Hearing this, F. H. Kneeland took train for Cuba to find out some details about the stripping for *Coal Age* readers. Next week he will tell what he found. There are three other big stripping shovels at Cuba, but he has nothing much to report about them.

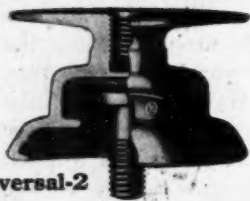
The big one will remove enough dirt that if it were shoveled out into the bucket from a hole in the ground, a 6-ft. man could get into the hole, lie down first in one direction and then in another at right angles and find he had 3 in. of space to spare. Then if he got up and tried to look out he would find that he could not see the prairie country in any direction but that the sides of the hole were so deep that they stood 3 in. above his head.

Mr. Kneeland found that the top of the coal was cleaned off with an air blast before being mined. Of course, he also ascertained many other interesting matters, all of which he sets forth in his article.

## Tells What Mr. Woodson Saw

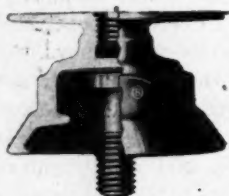
E. F. Woodson tells next week his experiences with long-face operation. Rarely has any one made a more careful study of the way in which the roof acts when coal is extracted by long-face methods. He believes the roof breaks forward toward the excavated area and then breaks backward till the break is back over the coal, but one cannot be sure of anything except as to the break in the roof near the coal. Yet Mr. Woodson gives observations that suggest that just what he surmises is what happens. There is a lot of meat for thought all through his article. Some one remarked the other day that the "livest" issue in coal mining is "roof control" because we can't mine by longwall or long face till we know how to handle the roof.

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# COAL AGE

McGraw-Hill  
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Devoted to the Operating, Technical and Business  
Problems of the Coal-Mining Industry

R. Dawson Hall  
Engineering Editor

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Number 8

## Make Business Profitable

NOTHING IS MORE disastrous for an industry than a general conviction that it is more profitable to run at a loss than to lie idle and thus face a heavier deficit. It is demoralizing because when many adopt this as a maxim in business, everyone suffers the loss, and the tonnage produced is no greater than it would be if everyone demanded a reasonable profit. It is time that the coal industry developed a better manner of thinking. Everyone should know his actual costs and refuse to operate when they cannot be met and more than met by the selling price.

Every ton of coal mined brings an inevitable outlay on more rails, ties, trolley wire and bonds. Every room worked out makes necessary more development, makes ventilation and drainage costs higher. It is well to ask if it is advisable to enlarge a mine, if the enlargement brings a loss instead of a return. At no time is a frank inquiry into actual costs more needed than during a period of low prices. When the earnings are high and profits are certain, the risk is inconsiderable, but with prices low the operation of a mine may be full of insidious financial dangers, and many companies not only lose money but actually lose more than they would if they shut down entirely or worked less regularly.

A better prospect is opening up before the industry. Tonnages are increasing, prices are a little higher and there is a tendency to operate mines just to increase or retain the working forces and be ready for the better times believed to be ahead. There will be no better times for the operator if the prospect proves too alluring. He will flood his market and there will not be enough tonnage to go round. Prices will also sag below a profit. What coal needs is a new psychology, a new way of thinking. If the industry persists in calculating in terms of volume of business instead of in terms of profit it will continue to face heavy losses.

## Eye Height and Eye Accidents

THE DISTANCE range of from 4½ to 6 ft. represents eye height. Within approximately this range any projecting nail, bracket, or timber-end is a potential hazard and may be the cause of a face or eye injury where the victim does not happen to note the projection. A file carelessly stuck into a timber forms a dangerous projection. Coal miners frequently use files to sharpen their picks. To prevent these files from being carelessly stuck into timbers it is good practice to forge the pointed end into a handle so that it cannot be stuck into the timber. Axes and picks are sometimes stuck into drift or heading timbers and thus are a source of danger to the unwary. It is good safety practice for a safety man systematically to examine workings and to remove all the spikes, projecting timber-ends and to

instruct miners and timbermen not to use the eye-height interval for their tools where men might pass.

## When Fire Has Passed

IT IS NOT TRUE that where fire has passed it cannot pass again. Mines which have had an explosion and had no fire in them have had a second one a few days or a few weeks later. Enough dust remains undistilled and unconsumed after an explosion to cause another and an equally disastrous explosion, and gas, of course, if present, will always renew the conditions that favored the first explosion.

But when gas has exploded and fresh air is not being introduced, as in an unventilated or sealed area, the atmosphere is full of carbon dioxide and the methane percentage has been reduced, so for a while another explosion is not likely to occur. If the oxygen in the air has been quite generally converted into carbon dioxide, the methane liberated by the heat may not have been completely burned. But methane in an extinctive atmosphere tends by its presence to lower the percentage of oxygen, thus making an explosion less probable.

Thus, after an explosion in an unventilated area, no further explosion is immediately to be feared. Consequently that is precisely the safe period at which to erect seals if oxygen-apparatus men are present to do it or can be rushed to the scene for that purpose.

At the Horning mine, there was an explosion that killed several men who were sealing a fire. Sometime later several apparatus men were in the mine exploring and another explosion occurred, which was stopped by rock dust. Very nervily these men who were not injured argued that then was afforded the best opportunity they would have to seal the mine. In fine, they knew the enemy had but one barrel to his gun and that when he had shot and missed was a good time to disarm him. So they proceeded to erect seals shutting in the inert atmosphere. The sealing was successful, though the explosion which made it possible was local and the atmosphere was doubtless not by any means free of oxygen.

At the Allan mine, also, seals over the main shaft and over the fan outlet were safely erected after the second explosion. In the light of the Horning recovery experience, it may be excusable to speculate whether it would not have been better to have strengthened the seals at the various levels rather than to have retreated to the surface and put seals on the exterior of the mine. The explosion should have been an assurance of safety. After it had occurred there should have been no apprehension for the men working in the shaft provided the seals were erected with rapidity and were placed so as to close in the fire area.

It was well to seal the fan outlet, for it appears to have been difficult to erect a seal on the return at any other point, but the work would have been materially

advanced had it been possible to keep the main shaft open.

If rescue men realized that an explosion which does little damage prepares the way for safe sealing and that a delay in sealing makes another explosion more probable they would be heartened to perform this work just when the peril seems most imminent, but is really most remote. They would then be able to take advantage of what work has already been performed and is available for extension and completion. To wait for the mine to load up for another shot is a fatal error.

The decision at the Allan mine was better chosen than that. There was no delay, only a change in plan. That change, if not for the best, was, at least, quite natural. It seemed the height of prudence and an evidence of due thought for the safety of the men. Most mine managers would have followed the same plan, but whether it was for the best, remains open to doubt.

However, this should be said: A mine that is provided with an inert atmosphere by an explosion has the disadvantage of being filled with extremely hot gases. These soon lose much of their heat to the environing walls, the cooling process drawing in air.

When, on the other hand, a mine has an equally inert atmosphere that has been created by a slow fire, by the absorption of oxygen by coal and timber and by the emission of methane, the atmosphere is cooler and there is less opportunity for it to cool and draw in air. Consequently the occasion is possibly safer for sealing operations than when the inertness of the atmosphere has resulted from an explosion.

But this more desirable condition is consequent only on complete sealing and can only aid in advancing work on a subdued or possibly extinguished fire. So it remains true that the few hours after an explosion is the safest time for sealing.

### Who Benefits By Efficiency?

**E**FFICIENCY METHODS and movements and the introduction of automatic labor-saving machinery have been regarded by organized labor as jacks to screw up profits for the employers rather than as instruments for the expansion of wages. But this view is incorrect, the higher production per man obtained from efficiency of management or methods, and from the installation of labor-saving machinery benefits labor just as much as the employer.

The cheaper the product can be mined or manufactured due to an increased production per man resultant on better methods or machinery, the cheaper it can be sold. Economic competition will limit the lion's share from going to the operator, and the fact that the operator can stay in business increases or maintains the earnings of his employees.

Although the rate of wages may not be immediately increased by the introduction of efficiency methods or automatic machinery, and although the employee who loads four tons by hand today and tomorrow loads six tons by machine may not have his wages increased one and one-half times, the fact that the operator is enabled to sell his products more cheaply maintains earnings for the employee, and gives him another day's wage that otherwise he would not have received, thus adding to his annual income.

The coal industry faces increasing competition from

oil, natural gas and hydro-electric power and needs every assistance from managerial and mechanical improvements to hold its own. In consequence they who stand in the road of management and operating progress within the industry stand in their own light.

### Mechanical Loading in Wyoming

**F**EW STATES of this Union have made such substantial progress in mechanical loading as Wyoming. The Union Pacific Coal Co., the Gunn-Quealy Coal Co., at Sweetwater, and the Kemmerer Coal Co., at Sublet, have all introduced face conveyors, Sweetwater having had them since 1924. Chain and reciprocating conveyors and scrapers are in use in the Rock Springs mines; at Sweetwater chain conveyors have been installed; at Sublet coal is conveyed in reciprocating conveyors and at Hanna, as also at Sheridan, two types of loading machines are working.

Mining methods, also, have been changed to meet the new conditions wherever the seams being mined are of moderate thickness. Faces, in length up to 300 ft., are worked, and the coal is broken down into a conveyor which discharges onto another conveyor at right angles to the first. This in turn discharges onto a short conveyor at right angles to the second, or parallel to the face conveyor, the third conveyor discharging into cars. The roof at the face is strongly supported by props or cribs which are systematically withdrawn as the face retreats from the caved area.

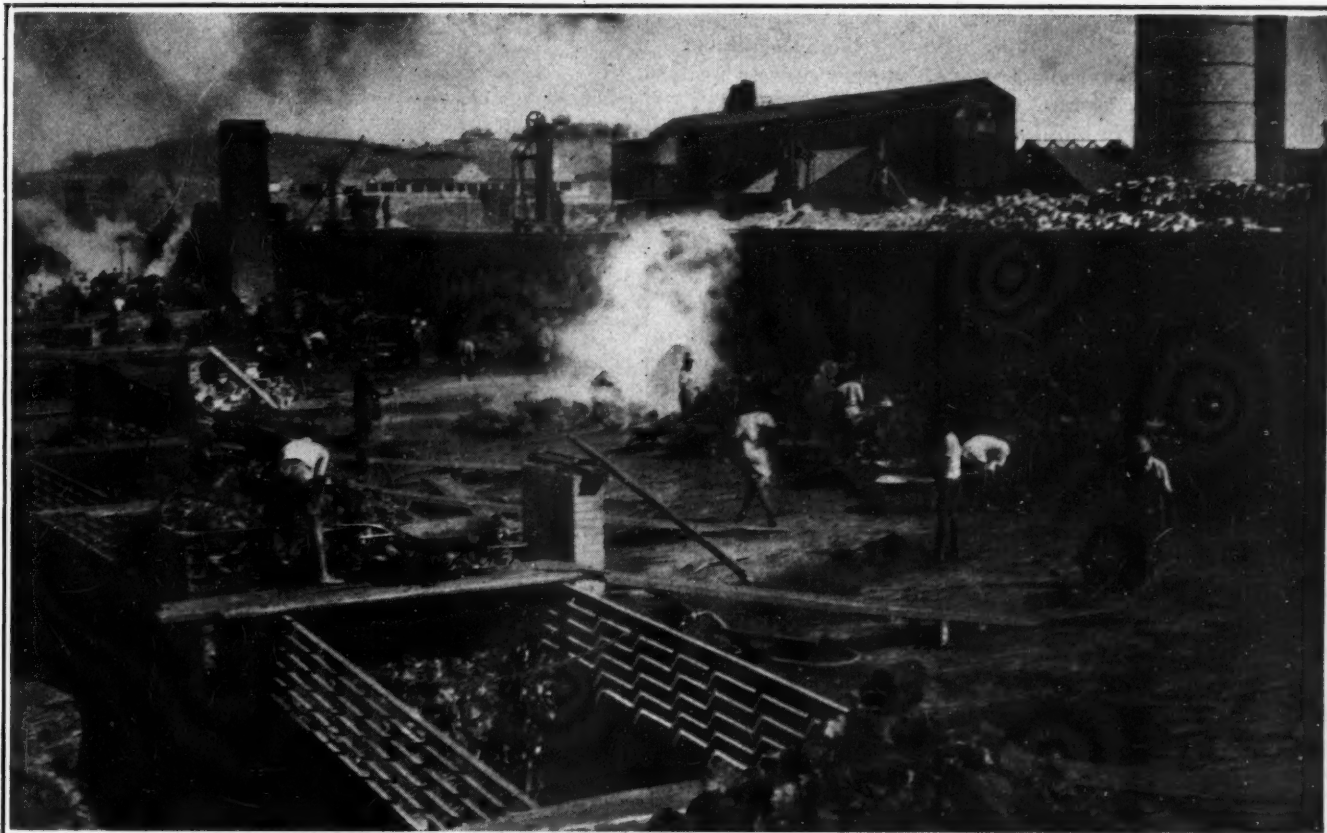
Scrapers and auxiliary conveyors are also being used in advancing operations but in this instance, the coal over an area considerably wider than a single room is extracted, the roof being supported on coal pillars and closely spaced props until this unit area is finished when the props are pulled and the roof caved. Reciprocating conveyors of the trough type are used both in development and in mining pillars. In thick-seam mining, the room-and-pillar method is the only feasible plan, and machines of several types have been used successfully in loading out coal from rooms and in development work.

Thus the second stage in the mechanicalization of mining has been reached, the first being the introduction and use of undercutting machines. One important novelty in the use of reciprocating conveyors seems as if it might become of great utility. An accessory scoop is attached to the end of the conveyor which loads out a large proportion of the broken coal, thus reducing the quantity of coal that has to be shoveled. Details of the mechanism are in process of development. Much credit is due the operating and engineering staffs of the Union Pacific Coal Co., for their work in perfecting this useful adjunct to the reciprocating conveyor.

Another notable development in Wyoming has been the standardization of methods. At the mines of the Union Pacific Coal Co. the same process is now going on that has done so much in the past to improve railroad practice. For every class of work, standards are being made, the work of establishing these standards being given to a specially appointed official to whom is accorded the assistance of all the officials of the company. Standards are no longer the avocational work of a busy man. They have a steady sponsor in the engineer whose work it is to prepare them.

Wyoming has "done her bit" in promoting progress, especially in the development of mechanical loading and low-cost methods of mining.





Coke Ovens, Wankie Colliery.

## Africa Has Four Times as Much Coal as Reported

Coal Reserves of Continent Total 225 Billion Tons—Two per Cent Only in Northern Half—Union of South Africa Has Nine-Tenths of All Coal—Coals Range from Carboniferous to Quarternary, Lignite to Anthracite

By Bertrand L. Johnson

Chief, Section of Foreign Economics,  
U. S. Bureau of Mines, Washington, D. C.

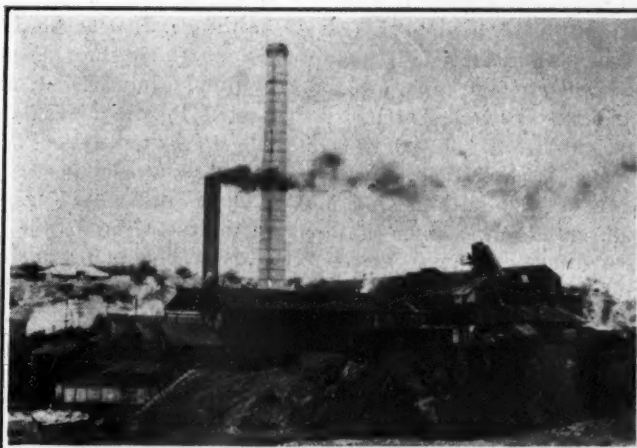
OF ALL THE ESTIMATES, hitherto compiled, of the coal resources of Africa, the best and most complete is that given in the volumes of the "Coal Resources of the World," published in 1913 by the Twelfth International Geological Congress. This places the total coal resources of Africa at 57,839,000,000 tons, with the additional statement that "large unestimated reserves remain in southern Nigeria, a moderate amount in Nyasaland, and small reserves in Madagascar, East Africa Protectorate, Sudan, and Abyssinia."

Since the data leading to the preparation of the above estimate were assembled about fifteen years ago, great progress has been made in the investigation of the coal resources

of the African continent, and many articles have been written embodying the results of these investigations. I have made a comprehensive study of the existing literature relating to the geology and coal resources of

Africa. This has resulted in large changes in the earlier estimates, an addition of estimates for the reserves of hitherto unknown or unconsidered coal-fields and an increase in the estimates of the coal reserves in others, approximately quadrupling the figures of the previous estimates for the total resources of Africa.

The total coal reserves of that continent may now tentatively be placed at 225,000,000,000 tons, about 98 per cent of which lies in the southern portion of the continent. The distribution of these reserves among the various political units is extremely unequal.



Wankie Colliery, Matabeleland, Southern Rhodesia

One of the important users of coal in Africa is the Union Minière du Haut Katanga. The concession is no great distance from Livingstone and the celebrated Victoria Falls. It is said to contain not less than six billion tons of coal. The Katanga copper properties lie far to the north in the Belgian Congo near its southern borders and some copper is being mined on the British side of the line. "Coal Resources of the World" says that Wankie coal has from "8 to 13 per cent of ash which compares well with the usual 15 to 20 per cent in South African coals."

Published with the permission of Director, U. S. Geological Survey.

About 90 per cent of the total coal reserve is in the Union of South Africa, 5 per cent in Rhodesia, about 2 per cent in Nigeria, and not over one per cent in any of the remaining countries of Africa.

The coals range in age from Carboniferous to Quaternary, and in rank from lignite to anthracite, but they are predominantly of Permo-Triassic age, and bituminous coal forms by far the greater part of the reserve. Bituminous and anthracitic coals occur in the Carboniferous measures of Algeria and the Permo-Triassic measures of southern Africa; lignite and bituminous coals in the Mesozoic and Tertiary beds in various parts of Africa and lignite in the Quaternary beds of Madagascar. Coking coals occur in the Carboniferous measures of the Keïadza basin of Algeria and in the Permo-Triassic coals of southern Africa.

**Union of South Africa.**—The total coal reserves of the Union of South Africa comprise about 90 per cent of the total coal reserves of the whole African continent. With the exception of some unimportant Tertiary and Cretaceous coals in Cape Colony they are all of Permo-Triassic age and lie in the central and north-eastern portions of a great structural basin covering practically the whole of the Union of South Africa except central and northern Transvaal.

The data available at present indicate a total coal reserve for this country of at least 205,400,000,000 tons. The coals range in rank from high-volatile bituminous coals to anthracite, although the greater part of the deposits appears to be a medium to low-volatile bituminous coal. For the most part the coals are non-coking, although the coal from some of the beds yields a coke suitable for metallurgical purposes.

**Rhodesia.**—The coalfields of Rhodesia are of Permo-Triassic age, and occur chiefly in a series of fault blocks along the Zambesi River Valley. Ninety-eight per cent of the known coal resources of Rhodesia are stated to be of semi-bituminous coal and the remainder in part bituminous and in part semi-anthracite. The Wankie coal makes an excellent metallurgical coke. The total coal reserves of Southern Rhodesia have been put at 6,814,000,000 tons; those of Northern Rhodesia in excess of 5,060,000,000 tons.

**Nigeria.**—The Nigerian coal deposits, restricted entirely to Southern Nigeria, occur in Cretaceous and Tertiary sediments. The Cretaceous coals are all sub-bituminous, whereas the Tertiary beds include both sub-bituminous coal and lignite. The reserve of Cretaceous coal is possibly over 2,000,000,000 tons. No estimates are available as to the reserve of Tertiary coal, but it appears to be considerable. In view of the wide distribution of the coals on the lower Niger River, the number and thickness of the beds, totalling 77 ft. of coal at one locality, it is not at all impossible that the reserves of Tertiary lignites much exceeds that of the developed Cretaceous coal of the Udi coalfield.

**Belgian Congo.**—The coal deposits of the Belgian Congo lie in great depressed fault blocks in a thin, nearly horizontal series of Permo-Triassic beds on the southeastern edge of the great Congo Basin. The coals are medium to high-volatile non-coking bituminous coals with widely variant ash content. The total coal reserves of the Belgian Congo were estimated in 1913 at 990,000,000 tons. Later investigations are said to indicate reserves of possibly nearly 2,000,000,000 tons.

**Portuguese East Africa.**—In Portuguese East Africa the Permo-Triassic beds alone are known to be coal-bearing. These are now present only in small fault



Where Africa's Coal Fields Are Located

The columns show where the reserves are and not the quantities produced, though if they were based on production the large center column, resting on the Union of South Africa would probably be even more impressively high and Nigeria's column would be even more squat. If great mineral riches are to come from Africa it will need much coal. Whether it can find available within its borders the needed fuel is a matter of much interest to American shippers.

blocks along the Lujenda and Zambesi Rivers, and in a narrow offshoot of the great Permo-Triassic coal basin of the Union of South Africa which extends northward along the boundary of that country and Portuguese East Africa.

By far the most important coalfields of this territory are those which lie in a group of small fault blocks along the Zambesi River in the vicinity of Tête, and which is usually referred to as the Tête basin. The coal reserves of this region, probably in excess of 1,000,000,000 tons, consists of low-volatile coking bituminous coals.

**Miscellaneous countries.**—The coal resources of the remaining coal-bearing countries of Africa are of much less importance than those just mentioned. Tanganyika Territory, Madagascar and Nyasaland, each have reserves of Permo-Triassic coal of a few hundred million tons. In Tanganyika Territory, Permo-Triassic coal-bearing sediments occur in some small fault blocks on the shores of Lake Nyasa.

In the most important of these fields the coal-bearing zone is traceable for 9 miles and where best developed has a total thickness of 36 ft. of bituminous coal, some of which will coke. The Permo-Triassic coalfields of Madagascar lie in three small fault blocks in the southwestern part of the island, with a maximum total thickness of 13½ ft. of medium-volatile bituminous coal.

Tunisia, also, has a total coal reserve of at best only a few million tons, consisting of Tertiary lignite and sub-bituminous coal, principally in the Cape Bon coalfield. Abyssinia, Eritrea, and British Somaliland, contain some small fields of lignitic and sub-bituminous coals of early Mesozoic age. The contained coal beds are few in number and individually do not exceed 2½ in. in thickness.



# How Allan Mine, Stellarton, N. S., Was Recovered After a Mysterious Explosion

Disaster Damages Only Part of Mine — Compressed - Air Leak Saves Seven Men—No One Working Where Explosions Appear to Have Started—Leaks in Made Ground at Air Shaft Give Trouble

By T. L. McCall

Assistant Mining Engineer, Acadia Coal Co.,  
Stellarton, N. S.

ON JUNE 30, 1924, an explosion, which resulted in the death of four men, occurred in the Allan mine at Stellarton, N. S., which is one of the mines belonging to the Acadia Coal Co., a subsidiary company of the British Empire Steel Corporation.

The coal field at Stellarton is an irregular canoe-shaped basin, with its axis pointing easterly and dipping to the east from the Allan mine. The seams which have been worked are, in their descending order, as follows:

	Ft. Thick
Foord coal seam.....	40
Strata .....	150
Cage coal seam.....	10
Strata .....	150
Third coal seam.....	10

Other seams are known to lie below these but so far they have not been worked at this mine.

At the time of the explosion the workings, with the exception of a small district in the Third seam, were all confined to the Foord seam. The coal measures are badly disturbed and faulted. Consequently levels frequently, when crossing a fault, pass directly or with only a short tunnel, from one seam to another. The pitch of the measures varies from zero to 80 deg. but the average inclination is 25 deg.

The workings are reached by two vertical shafts, of which No. 1, situated on the axis of the basin, is the main hoisting shaft, and is sunk to a depth of 1,250 ft. (1,204 ft. below sea-level) to the Foord seam. This shaft has three compartments, Nos. 1 and 2 being used for hoisting; No. 3, which is separated from the other two by a wooden brattice, is reserved for pump columns and electric cables. There are two intermediate landings situated at 522 and 1,008 ft. respectively (476 ft. and 962 ft. below sea-level) from the surface. Prior to the explosion, coal was hoisted from all three landings.

No. 2 shaft is distant some 350 ft. to the north of No. 1, is sunk to a depth of 1,008 ft., and has an intermediate landing 522 ft. from the surface. From the intermediate landings, level crosscut tunnels are driven through the rock which intersect the seams at corresponding elevations.

The mine is worked by the bord-and-pillar method and as the coal is liable to ignite spontaneously when pillars are being extracted, the panel system is used.

Abstract of article entitled "The Explosion and Recovery at Allan Mine," read at annual meeting of Mining Society of Nova Scotia at Baddeck, N. S., held June, 1926, and published in Transactions of the Canadian Institute of Mining & Metallurgy.

As soon as all the available coal has been extracted from a panel, the entries to that panel are closed by substantial stoppings.

The workings are ventilated by an exhaust fan placed at No. 2 shaft, No. 1 shaft being the downcast. The seams emit much gas, but with a total ventilating current of 80,000 cu.ft. of air per minute, at 3.7 in. of watergauge, little gas is to be found in the return airways.

Prior to the explosion there were three main air splits. At the 476-ft. landing, one split ventilated all the workings in that district and returned directly to No. 2 shaft. At the 1,204-ft. landing the intake air was split east and west at the shaft bottom, these air currents eventually being led back through workings to the 962-ft. landing of No. 2 shaft.

Most of the water made in the mine is caught at the 962-ft. landing, where electrically driven pumps, located at No. 1 shaft, throw it direct to the surface. The water from the 1,204-ft. landing is pumped to the main sump at the 962-ft. landing.

The Acadia Coal Co. maintains a rescue corps in charge of a skilled instructor, and the rescue station is well equipped with self-contained breathing apparatus and other necessary accessories.

The explosion occurred at 4 p.m. at a time when the afternoon shift, consisting of 76 men was just about reaching their working places. The

first word that something unusual had happened was received from the pump attendant at the 962-ft. landing, who, calling for the cage by telephone, stated that dense volumes of smoke and dust were pouring out from the inby workings. The rescue station was immediately notified and had all its apparatus and available men on the ground with the least possible delay.

The mine fan, from an external examination, appeared to be uninjured and was kept running at its normal speed. The attendant in charge of the air compressors reported a sudden drop in pressure, and accordingly instructions were given to start up another compressor and maintain the normal pressure of 90 lb. per sq.in.

Almost immediately men began to come up No. 1 shaft from the 1,204-ft. landing. They reported that dense volumes of asphyxiating smoke and dust were coming from the west side of the shaft, against the normal air current, and passing into the east-side intake air. They further reported that when passing the 476-ft. landing, the air in the shaft was clear, and so,

**THIS MINE** has many of the characteristics of the average anthracite mine of the United States in its dips, folding and faulting and in its method of operations. The coal, however, doubtless burned somewhat more fiercely. Electricity probably had nothing to do with the fire as it was used only to operate the pumps at the shaft. The rescue men had to take scows down in the cage, launch them and float them to dry ground in order to erect one of the stoppings. Another had to be built in 3 ft. of water.

as the rescue corps was scarcely ready, a volunteer crew without breathing apparatus descended and warned all workers in that district to make for the surface. None of the men in the 476-ft. landing had any idea that anything unusual had occurred.

Some of the workers in the 1,204-ft. landing, east district, had taken warning from the fumes and dust in the air, and made their way out to the shaft bottom, and on to the surface; but it was necessary to send a rescue team carrying canaries and safety lamps into the furthest inby workings, where a large number of men were employed.

They found these men were also blissfully ignorant of any disaster having taken place, and, as the air was respirable, they were brought out to the surface. Thus by 6 p.m., with the exception of eleven men who had gone to work in the Third seam on the west side of the 1,204-ft. landing, account had been received of all

the head of this sinking. Four of the men had succumbed to the effects of afterdamp with the remainder either unconscious or dazed. It was learned afterwards, from the survivors, that they had been at work when the explosion occurred and in trying to make their way out, up the Third seam sinking and along the level, had found their way blocked by falls. It is probable that the leak of compressed-air was of material benefit in saving life until ventilation was restored.

The course of the ventilation current heading west from the lowest landing is indicated on the map by arrows and is as follows: From No. 1 shaft at the 1,204-ft. landing the air entered the Foord seam, from which a crosscut tunnel led to the Cage seam. Another crosscut in the Cage seam brought the air to the Third-seam level, and after traveling down the sinking and around the workings it returned to the Third-seam counter level. Thence the air ascended through

Beaton's Balance to the 962-ft. level, then through a crosscut tunnel back to the Cage seam, where after ventilating a small pillar district in the Foord seam, it returned to No. 2 shaft along the 962-ft. Cage west level.

Close to where the men were found, at the top of the Third seam sinking, were signs of a violent explosion, with all indications of its force having traveled down Beaton's Balance.

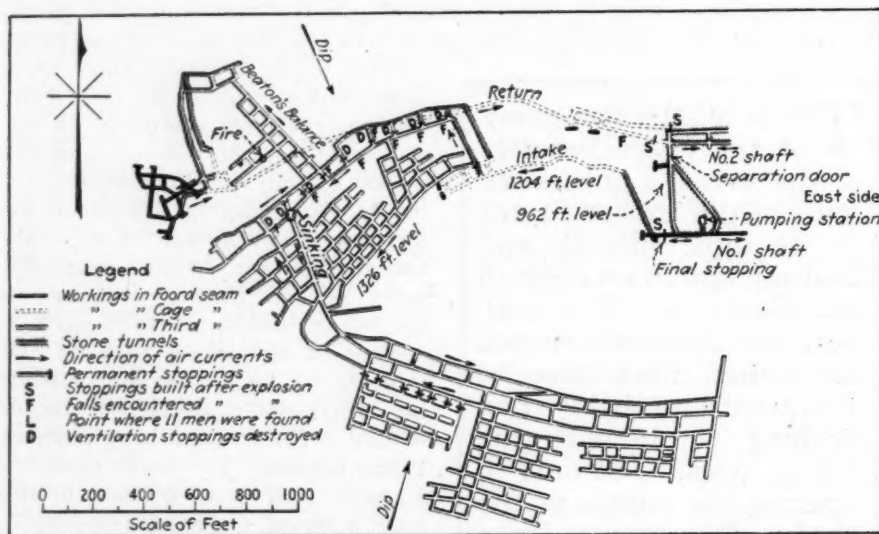
By midnight all the men, who had been in the mine at the time of the explosion, had been brought to the surface, and the next step was to try and reach the seat of explosion. With this in view, a party was organized to explore the return airway in the 962-ft. Cage west level. Falls were soon encountered, and these proved to be so heavy that ultimately the attempt had to be abandoned, after several hours of

fruitless labor. Furthermore, towards the end of the attempt smoke and fumes became so strong as to preclude barefaced men working there any longer.

Activities were then transferred to an attempt to make a way up by Beaton's Balance, on the intake air. After arduous and dangerous work in clearing enough room to squeeze through falls, the exploring party arrived about halfway up the balance, where further progress was blocked by dense smoke coming from a fire in an old bord (see plan). This place had been driven about four years ago.

The fire when discovered was burning fiercely. The road into it was in an extremely dangerous condition and, as there were no materials nearer than the shaft bottom wherewith to fight it, or to seal it off and, especially, as there were grave doubts whether other fires in the same district might not have been started by the explosion, it was decided to retreat to the shaft bottom and erect temporary stoppings to isolate the whole district, and so allow the fire to smother itself.

This was done by building a stopping of boards and brattice cloth on the west side of the shaft at the 1,204-ft. landing, and two similar stoppings on the Cage west return at the 962-ft. landing; these stoppings being placed approximately where permanent stoppings were ultimately built (see plan). This was all



Part of Allan Mine in Which Explosion Occurred

The east section of the mine is omitted, also that part connecting with the 476-ft. level. Apparently it is the custom at Stellarton to denominate levels not in relation to the depth from the surface but in accord with their sea-level depths.

the men at work in the mine at the time of the explosion.

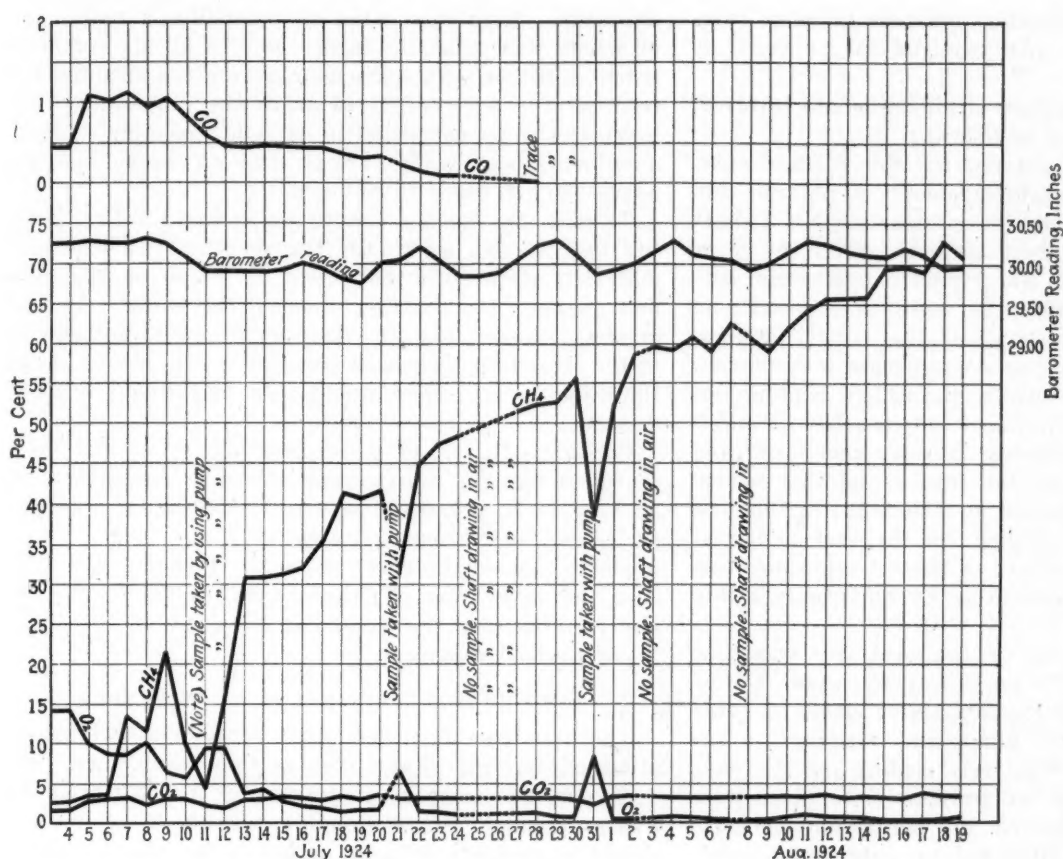
The rescue team on its return to the surface reported that the ventilation at the 1,204-ft. landing was again normal, and so a fresh team descended, accompanied by bare-faced men carrying canaries, to explore the west district.

#### VIOLENCE IN THIRD SEAM

No signs of violence were observed until the tunnel to the Third seam was reached, where the first fall of roof was encountered, and where the first ventilation stopping in this district was found to be totally destroyed. Later, it was found that all the ventilation stoppings on this level had been destroyed by the force of the explosion. From this point onward falls were frequent and became heavier the further the rescue men advanced. Eventually they found their passage completely blocked by a large fall. Retracing their steps for a short distance, they found an open passage way still open and leading to the lower workings. Descending this, they found a clear road on the 1,325-ft. level, along which they made their way to the bottom of the Third seam sinking.

After some search the eleven men were found grouped around a break in the compressed-air line at





### Gas Analyses, No. 1 Shaft

It will be noted that the explosion occurred June 30 and that the first gas analysis on the chart is of July 3, apparently after the second explosion had occurred and the shafts had been sealed. The oxygen percentage was not far from 15 and barely low enough to prevent a gas explosion. The percentage of carbon dioxide then and always was quite low. In fact the fire seemed to have been smothered by methane but when the first analysis was taken the methane was low though too high for safety. The drop in the oxygen percentage after the analysis of July 4 made another explosion unlikely. The carbon-monoxide percentage is plotted at the top of the chart and on a much magnified scale.

completed by 1 p.m. of the day following the explosion; the horses were then taken out of the mine, the fan slowed down to take the pressure off the stoppings, and results awaited.

On Wednesday evening, exactly 52 hours after the first explosion, another explosion occurred. Nothing remained but to seal off both shafts at the surface, and thus kill the fire by depriving it of oxygen. To do this, timber was laid across No. 1 shaft, which in turn was covered with boards and brattice cloth, and the whole buried under three feet of sand. No. 2 shaft was already closed with a concrete airlock, so the fan chimney was boarded over and covered with sand, and all doorways plastered up. As far as it known, no further explosions took place.

Searching investigations by the Government Mines Department, and by the Company's officials have failed to reveal the cause of explosion. No men were working on that shift in the district from whence (as indicated) the force had come, nor could the fire, found after the explosion, have been the cause, as that airway had been traveled shortly before the end of the day shift, and any signs of fire would most certainly have been detected. There is no electrical machinery in the mine, except the pumps at No. 1 shaft.

When the mouths of the shafts were sealed, pipes were placed through the seals so that samples of the gases in both shafts could be obtained. Daily analyses were taken of these samples and the results are shown on the two accompanying charts (Figs. 2 and 3). A steady diminution of oxygen accompanied by a rise in methane will be noted. As barometer variations are important in obtaining gas samples from a sealed area, the rise and fall of the barometer is also plotted on the charts. The small percentages of carbon monoxide are indicated on a larger scale at the top of each chart.

On Aug. 12, the head officials of the British Empire Steel Corporation and the Acadia Coal Co. held a meeting with the Deputy Minister of Mines and his District Inspector, to consider ways and means of reopening the mine whenever it might be deemed advisable to do so. The outstanding points which had to be considered were:

(a) The mine fire was probably lying dormant and would be readily fanned to life by a current of fresh air, consequently it would be necessary, when reopening the mine, to prevent air finding its way into the fire area. This would certainly happen if the seals were removed from both shafts for with No. 2 shaft bottom to the rise of No. 1 shaft bottom, the difference in the densities of the gases, and the residual heat at the fire area, would immediately cause natural ventilation and draw fresh air over the fire area.

(b) Open connections existed in the workings between the 1,204- and the 962-ft. landings on both the east and west sides of the mine. Further the 962-ft. landing workings were connected to the 476-ft. landing. The consequences of this inter-connection of workings would be, even if No. 1 shaft only were opened, that as soon as fresh air arrived below the 476-ft. landing, a natural circuit would be established in different parts of the mine, with the danger of allowing fresh air to penetrate to the fire area.

(c) The overflow from the sumps at the 962-ft. landing had doubtless flooded the shaft bottom and as this would not drain away to the dip workings till the water was 4 ft. deep in the landing, that depth of water would be found over the plates at the foot of the shaft. When the dip workings were filled, which it was estimated might take from eight to ten weeks, the water would then gradually rise at the shaft bottom.

(d) It was not known how much damage, if any, had been done by the second explosion.

(e) Every known precaution must be taken to safeguard the lives of the men engaged in the work of reopening.

After careful consideration of all the points involved, it was decided to proceed as follows:

The mine was to be entered by No. 1 shaft only, No. 2 shaft remaining tightly sealed. A portable fan to be run exhausting would be erected near No. 1 shaft and connected to No. 3 compartment. After the cover had been removed from No. 1 shaft, men using self-contained breathing apparatus were to descend and build one temporary stopping at the 476-ft. landing, which was all that was necessary to isolate that district.

They were then to descend to the 962-ft. landing and tightly close the separation door between Nos. 1 and 2 shafts, thus effectively closing the only communication on that landing, between the intake and the return. They were then to proceed to the 1,204-ft. landing and build temporary stoppings on the east and west sides of the shaft, the object of these temporary stoppings being to prevent natural air currents being established in the mine.

The temporary stopping on the west side was then to be reinforced and the crew was to return to the 962-ft. landing, to open the separation door, to enter the return and erect two temporary stoppings in the Cage west level, thus effectively sealing off the west side of the mine. These two temporary stoppings were to be immediately followed by permanent concrete stoppings, and again reinforced by substantial wood-block stoppings.

As there would be grave danger in using the electric-signalling apparatus, ordinarily in use, a hand rapper actuated by a pull wire was installed and a suitable code of signals arranged.

As it was necessary that all the reopening work should be done by men using self-contained breathing apparatus, the personnel of the corps was increased to enable the work of reopening to be performed without

cessation. Five men were to constitute a team, one of whom was to be the leader, and in all six complete teams, together with spare men, were given an intensive training for a fortnight prior to the reopening. No team was to be permitted to descend the mine without a relieving team being kept on duty on the surface, all harnessed and ready to go down.

To meet the flooded conditions at the 1,204-ft. landing two wooden scows for transporting the men and materials were built that could be placed on the cage and floated off when they reached the water. It was known, however, that the flood water would not extend to the site of the proposed stopping on the west side of the mine, so the scows would be used for only a short distance.

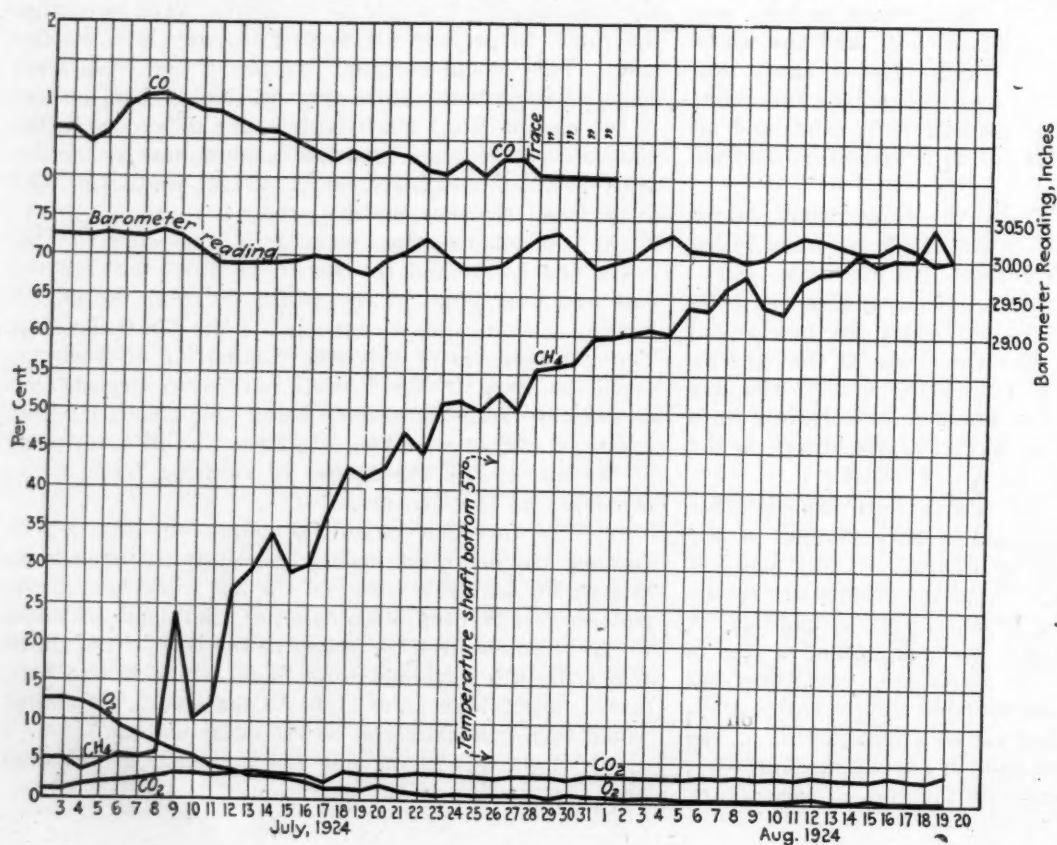
On Aug. 19, or 48 days after the mine had been sealed, it was decided that conditions in the mine were such as would permit an attempt being made to reopen it. Accordingly next morning at 7 a.m. a start was made to remove the cover from No. 1 shaft. By 9:50 a.m. the cover was off, the temporary fan connected and running, and the cages had been run in the shaft to see that all was clear.

#### CREW BUILDS STOPPINGS AS IT DESCENDS

The first team then descended to the 476-ft. landing, stringing out the rapper wire as they went down. By 1:40 p.m. the temporary stopping at the 476-ft. level was completed. This stopping was built of boards nailed to uprights with the joints of the boards lapped and plastered. No sooner was this completed than a heavy pressure of gas showed behind it.

A descent was next made to the 962-ft. landing where the separation door between Nos. 1 and 2 shafts was found to be intact but open. This door was closed, nailed up and plastered, and the stopping in the Foord seam, in this vicinity, was examined and found to be intact.

An analysis of the gases taken at the separation



#### Gas Analyses, No. 2 Shaft

The chart is quite similar to that of No. 1 Shaft showing that so long as that shaft was closed the other shaft did not pass air in quantity. The readings only extend to Aug. 19 when Shaft No. 1 was opened. At that time, to take the reading of Aug. 18, the percentage of methane was about 74, the nitrogen percentage about 21 and the carbon-dioxide percentage about 4. The oxygen had almost completely disappeared. If any oxygen had been entering it had been absorbed by the ribs, for the carbon dioxide was not increasing and carbon monoxide had actually been decreasing. When Shaft No. 1 was opened, Shaft No. 2 which was not concreted down to bedrock began to pass air rapidly, and the oxygen in it rose to 11.12 per cent.



door, prior to closing, showed 6.44 per cent of oxygen; 2.62 per cent of carbon dioxide; carbon monoxide nil, and 51.85 per cent of methane; proving that fresh air was making its way towards No. 2 shaft.

It was then noticed by the rescue men that little air was traveling down Nos. 1 and 2 compartments at the 962-ft. landing, and a quick search showed that the brattice partition in the shaft was very defective, and that the air was thus short-circuiting. It was also found that a large volume of gas was leaking past the temporary stopping at the 476-ft. landing, so it was decided to reinforce this stopping with a 12-in. sand filling, and to repair the brattice before proceeding to the 1,204-ft. landing. This reinforcement was completed by 10:40 p.m.

When working at the brattice partition it was necessary to work on the top of the cage and, as the space was constricted, only three men were permitted to work. As the air in the shaft was fresh, it was finally arranged that one bare-faced man, accompanied by two rescue men wearing apparatus, should be allowed to work at repairing the brattice, as this permitted the work to be carried on with greater expedition.

As the day advanced it was noticed that the water gage in No. 2 shaft was steadily dropping. The water gage reading was due to the different densities of the gas columns in Nos. 1 and 2 shafts and, as conditions in No. 1 shaft had not changed materially, it was concluded that the seals on No. 2 shaft were leaking, and that fresh air was displacing the gas in No. 2 shaft and so tending to equalize the weights of the two columns.

#### TOO MUCH OXYGEN IN NO. 2 SHAFT

An analysis of the gases in No. 2 shaft was made, which showed that the oxygen had risen to 11.12 per cent, clearly proving the assumption. Not knowing by what underground route this air was finding its way to No. 2 shaft, it was decided to play safe and reseal No. 1 shaft, and allow time for the oxygen in the mine air to dissipate itself. Thus the mine was again closed after having been open for 17 hours.

Next day the seals on No. 2 shaft was carefully inspected and made as tight as possible, but as the shaft had been sunk in made ground, and as the concrete collar of the shaft has not been carried down to the top of the rock, it was found that much air leaked through the ground around the shaft.

Fig. 4 is a copy of the chart of the water gage on No. 2 shaft, which is of interest as the effects of the various operations on Aug. 19 can be clearly seen.

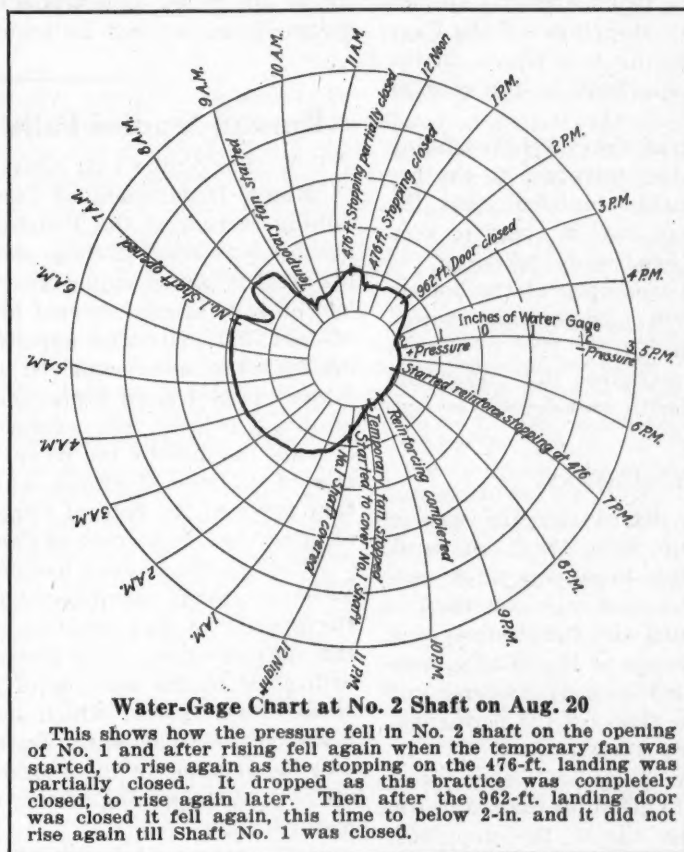
After consultation, it was decided to again open No.

1 shaft, when the oxygen in No. 2 shaft had fallen to 6 per cent. Further, it was decided that while No. 1 shaft was open, analysis of the gases from No. 2 shaft should be taken every fifteen minutes, and that if the oxygen in No. 2 shaft rose to 10 per cent, No. 1 shaft should be sealed again.

On Aug. 24 conditions were again suitable for reopening and at 7 a.m. No. 1 shaft was uncovered, and the previous work was inspected and found in good condition.

The rescue team now descended to the 1,204-ft. landing where they had to work under the most difficult conditions. All the water usually caught and pumped at the 962-ft. landing was pouring down the shaft at the rate of some 250 g.p.m., and at the bottom the plates were covered with water to a depth of 4 ft. However, this did not daunt the crew, and they soon had their scows afloat and were ferrying materials for the stopping on the west side of the mine.

The site that had been selected for this stopping was just at the end of the concrete lining near the shaft bottom, a point that provided excellent conditions for building. Prior to closing this stopping an analysis of the air at that point was taken. This showed 18.52 per



cent of oxygen, clearly proving that fresh air was indeed finding its way in toward the fire area. By 2.30 p.m. the oxygen in No. 2 shaft had risen to 10 per cent and consequently work was suspended and No. 1 shaft closed again, after having been open for 8½ hr.

By Aug. 28 the oxygen in No. 2 shaft had again fallen to 6 per cent and at 1:30 p.m. No. 1 shaft was reopened. Concrete was mixed on the surface and sent down the mine in buckets and ferried over from the cage, and by 12 midnight the temporary stopping on the west side of the 1,204-ft. landing had been reinforced with 18 in. of concrete. As all the materials had to be ferried and carried, each team was increased to eight men, in order to speed up the work.

When the stopping was nearly completed it was noticed that air was being drawn in through the opening. An analysis at this point showed 15 per cent of oxygen in the air.

The self-contained breathing apparatus had been used under such trying conditions that it was considered advisable to call a halt and have the apparatus thoroughly dried out, before being put to further use, and so No. 1 shaft was sealed up once more, after having been open on this occasion for 13 hr.

On Aug. 30 No. 1 shaft was again reopened and the previous work inspected and found to be in good condition. The building of the temporary board stop-

ping on the east side of the 1,204-ft. landing was then begun, the men having to stand in 3 ft. of water to accomplish this.

While the materials were being prepared, a team visited the approach to the dip workings and found them in good order without any accumulation of water, showing that the dip workings had not filled as rapidly as had been expected. The temporary stopping being completed, a return was made to the 962-ft. landing, the separation door between the two shafts was opened, and the site for the temporary stoppings on the Cage west level prepared. One stopping was placed on the main level and the other in the head to the counter level. (See plan.)

With the concrete stopping at the 1,204-ft. landing in place, thus closing one of the entrances to the fire area, the officials felt reasonably confident that the worst of the troubles were over but, in order to keep on the safe side, samples of gas were taken in the return airway, as No. 2 shaft was open at the bottom to fresh air. These samples were consistent and showed about 2.8 per cent of oxygen; 0.2 per cent of carbon monoxide, and 49 per cent of methane; thus indicating that the stopping at the 1,204-ft. west level was reasonably tight.

#### TOOK SEAL OFF FAN CHIMNEY

By nightfall the temporary board stopping was in place and had been backed up with 18 in. of sand. Samples of gases taken behind these stoppings continued to show uniform results, so it was now decided to remove part of the seal from the fan-chimney and thus create a current of fresh air at the 962-ft. landing, so as to permit barefaced men to descend and assist at the preparation of the sites for the permanent concrete stoppings on the Cage west level.

On Aug. 31 the mine fan was started at a slow speed, and barefaced men descended to clean up the roadways, the rescue corps preparing the site of the stoppings. To facilitate continuity of the work a fresh-air base was now established underground, where the rescue men changed shifts.

Owing to the broken nature of the ground the concrete stoppings were of considerable size. The one in the level was 15x21x2 ft., and the one in the passage to the counter level measured 14x12 ft. x 18 in. By Sept. 7 the concreting was finally completed and the work of clearing the mine of gas was begun. The electric pumps at the 962-ft. landing were then started, and a temporary pump erected in the shaft at the 1,204-ft. landing to clear the water from the shaft bottom. The workings, other than the flooded areas, were all found to be standing in splendid condition. On Sept. 12 coal was again being hoisted from the mine.

The concrete stoppings that were put in were regarded merely as temporary stoppings, as it had been decided to reinforce these when the mine was working. Accordingly, a site was selected at the 1,204-ft. landing for the permanent stopping which would also cover the two old concrete stoppings in the Foord workings, as well as the one installed temporarily. This final stopping was built of concrete, 4 ft. thick, and was of considerable magnitude as it was found necessary to dig down 10 ft. into the floor before a solid bottom was reached. The greatest width was 26 ft. and the total height about 50 ft. above floor level, before solid ground was reached. In the Cage west level, at the 962-ft. landing, it was feared that there might be ground move-

ments, which would break up the concrete already in position, consequently the final stoppings were built of 5-ft. wood-blocks set in sand, and faced on the outside with mortar.

The "Meco" rescue-apparatus stood up well to the work. There was only one mishap when water got into the relief valve of one of the machines and caused caustic-potash fumes to circulate in the apparatus. In all, 730 machine hours were worked during the reopening of the mine. The whole of the recovery work was accomplished without an accident.

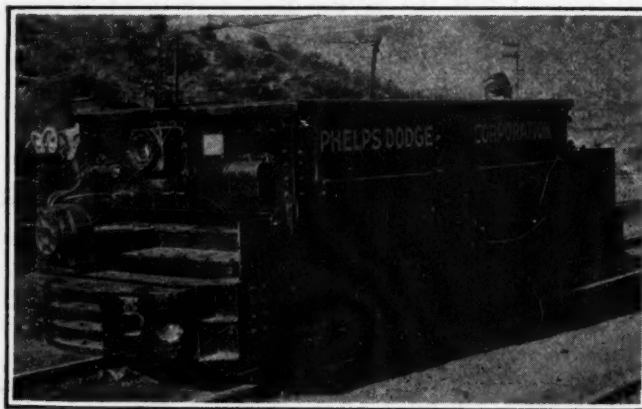
### Bureau Studies Falls of Roof and Coal

J. W. Paul, chief coal mining engineer of the Bureau of Mines, Department of Commerce, and chief of the mining section of the Pittsburgh Experiment Station, has been relieved of those duties in order to admit of his designation as senior investigator to study the problem of falls of roof in coal mines. The fact that falls of roof and coal cause approximately half of the fatal accidents to men employed underground in the coal mines of the United States indicates the serious nature of this problem. The conducting of this special study is made possible by the recent Congressional appropriation of the sum of \$7,500, which was voted as a voluntary move on the floor of Congress during the consideration of the Department of Commerce appropriation bill.

Although the Bureau has not included the item in its estimates, many members of Congress acquainted with the gravity of this problem united in the insertion of the appropriation. This action of Congress enables the utilization of the services of an exceptionally qualified senior investigator, which had not in the past been possible with funds at the Bureau's command. Mr. Paul will be assisted in his research by John N. Geyer, a member of the mining section of the Pittsburgh Experiment Station.

It is recognized by the Bureau of Mines that the reduction of the loss of life from falls of roof and coal is one of the most difficult safety problems in the mining industry. Most of the falls naturally occur while the miners are loading coal on the cars or while engaged in cutting or barring down the coal, and, if the loss of life from this cause can be materially reduced, it will be necessary to obtain real co-operation, not only from the mine operators and mine officials, but also from the individual miner.

### Gathering Locomotive at New Mexico Mine



The Phelps Dodge Corporation is using storage battery locomotives with provision for running on trolley current when desired. This locomotive is fitted with lead batteries.



# Percentage Method of Paying for Slate Handled By Miner at Working Face

Slate Should Be Paid for in Accord with Actual Yardage to Be Removed and Not by Lineal Yards of Working Place Driven—Yardage Involves Measuring Progress of Each Room or Heading

By W. F. Hanley\*

Omar, W. Va.

**H**OW TO MEASURE the extra compensation to be paid the miner for cleaning coal from seams with slate bands of varying thickness is a question which often has been a bone of contention between workers and management. The yardage system, under which the slate is rated at a certain price per inch of thickness per lineal yard of room or entry driven, admittedly is open to serious objections. Such a system penalizes the more efficient workers, as the less efficient mine fewer tons per cut, but receive the same rate per lineal yard.

The percentage method of paying this extra compensation, under which the miner is paid in proportion to the amount of slate in the seam, the slate thickness being expressed as a percentage of the total seam, offers itself as an ideal and practical solution of the problem. This method has stood the test of practice at several mines, where it has been in use since March, 1925.

Under the system to be described the miner is paid in proportion to the slate he handles and not according to the distance he advances his working place. The more efficient miners, who load more coal and handle more slate per cut than the average miner, are paid in proportion to the work they perform.

Where this method is employed the working places are rated at the beginning of the period. This enables the miner to know in advance what to expect for his slate work, eliminates the foreman's dread of "measurement day" and affords the manage-

ment an accurate estimate of the cost to be expected. No linear measurements are used, as it is only necessary to measure the thickness of the slate and the thickness of the total seam. Payment depends on tonnage not on yardage.

This makes it possible to measure and rate the working places with the least expenditure of time and, with the aid of a location or "serial number," described later, permits a place to be worked by any

number of miners during a period without requiring the foreman to measure the distance driven by each miner who works in the place. All arguments as to the number of yards driven are stopped, as there are no yards to be measured. Compensation for the handling of slate being rated per ton of coal, or per car, removes the chance of the foreman's failure to record the miner's extra compensation, facilitates the work required at the payroll office and

induces the miner to load coal that he would otherwise gob.

Fig. 2 shows graphically thicknesses of slate expressed as percentages of the total seam for different coal thicknesses. In this chart, the thickness of the total seam increases as the slate increases, the coal thickness remaining constant. This chart shows the relative quantities of slate to be handled in mining coals of different thicknesses and is used in preparing slate-rate percentage tables for field use. In determining these rates it is necessary to decide upon the proper thickness of coal to use as a base for the calculation of the slate rates. For one mine this may be the average thickness of the coal. For a group of mines, granting

SERIAL NUMBER	PRICE PER CAR	CHECK NUMBER	CHECK NUMBER	CHECK NUMBER	MINE LOCATION	ROOM, HEADG. OR PILLAR	INCHES SLATE	INCHES OF COAL AND SLATE	PERCENT SLATE OF SEAM	DATE

Fig. 1—Form for Recording Compensation for Rock

The places are rated in advance of operation, so there can be no complaint unless the thickness of rock increases. Then the mine superintendent revises the rating. The compensation is determined for the place and the record is available no matter who works the room or heading.

TABLE I—SLATE THICKNESSES FOR DIFFERENT COAL THICKNESSES EXPRESSED AS PERCENTAGE OF TOTAL SEAM

Per Cent Slate of Total Seam	36-In. Coal	48-In. Coal	60-In. Coal	72-In. Coal	84-In. Coal	96-In. Coal	108-In. Coal
1	0.36	0.48	0.60	0.72	0.84	0.96	1.08
2	0.73	0.96	1.22	1.47	1.71	1.96	2.20
3	1.11	1.48	1.85	2.23	2.60	2.97	3.34
4	1.50	2.00	2.50	3.00	3.50	4.00	4.50
5	1.89	2.53	3.15	3.79	4.42	5.05	5.68
6	2.30	3.06	3.82	4.60	5.36	6.13	6.89
7	2.71	3.61	4.51	5.42	6.32	7.23	8.13
8	3.13	4.17	5.21	6.26	7.30	8.35	9.39
9	3.56	4.75	5.93	7.12	8.31	9.49	10.68
10	4.00	5.33	6.66	8.00	9.33	10.67	12.00
11	4.45	5.93	7.41	8.90	10.38	11.86	13.35
12	4.91	6.55	8.18	9.82	11.45	13.09	14.73
13	5.38	7.17	8.96	10.76	12.55	14.34	16.14
14	5.86	7.81	9.76	11.72	13.67	15.63	17.58
15	6.35	8.47	10.58	12.71	14.82	16.94	19.06
16	6.86	9.14	11.42	13.71	16.00	18.29	20.57
17	7.37	9.83	12.28	14.75	17.20	19.66	22.12
18	7.90	10.54	13.17	15.80	18.44	21.07	23.71
19	8.44	11.26	14.07	16.89	19.70	22.52	25.33
20	9.00	12.00	15.00	18.00	21.00	24.00	27.00
21	9.57	12.76	15.94	19.14	22.33	25.52	28.71
22	10.15	13.54	16.92	20.31	23.69	27.08	30.46
23	10.75	14.34	17.92	21.51	25.09	28.69	32.26
24	11.37	15.16	18.94	22.74	26.53	30.32	34.11
25	12.00	16.00	20.00	24.00	28.00	32.00	36.00
26	12.65	16.86	21.08	25.30	29.51	33.73	37.95
27	13.31	17.75	22.19	26.63	31.07	35.51	39.95
28	14.00	18.67	23.33	28.00	32.67	37.33	42.00
29	14.70	19.61	24.50	29.41	34.31	39.21	44.11
30	15.43	20.57	25.71	30.86	36.00	41.14	46.29
31	16.17	21.57	26.96	32.35	37.74	43.13	48.52
32	16.94	22.59	28.23	33.88	39.52	45.18	50.82
33	17.73	23.64	29.55	35.46	41.37	47.28	53.19
34	18.55	24.73	30.90	37.09	43.27	49.45	55.64
35	19.38	25.85	32.31	38.77	45.23	51.69	58.15
36	20.25	27.00	33.75	40.50	47.25	54.00	60.75
37	21.14	28.19	35.24	42.29	49.33	56.38	63.43
38	22.06	29.42	36.77	44.13	51.48	58.84	66.19
39	23.01	30.69	38.36	46.03	53.70	61.38	69.05
40	24.00	32.00	40.00	48.00	56.00	64.00	72.00

To convert "Inches of Slate" into cents per ton of coal, multiply "Inches of Slate" by the slate rate per inch per yard and divide this product by the number of tons of coal mined per lineal yard of working place. Note that "Per Cent Slate of Total Seam" is the slate expressed in percentage of the total thickness of coal and slate.

\*Member A.I.M. & M.E.

that the slate rate at one mine is correct, the average thickness of coal at that mine could be used as the basic thickness for the group. It is only necessary to calculate the percentage rates for the basic thickness, as this calculation automatically provides for the different thicknesses of coal where it is desired to pay the same rate per cubic foot of slate.

Table I is a table of slate thicknesses for different coal thicknesses expressed as percentages of the total seam (coal and slate). The data in that table have been calculated from the formula:  $X = KY \div (100-Y)$ , where  $X$  = inches of slate;  $Y$  = per cent the slate occupies to total seam; and  $K$  = thickness of actual coal in inches, not the whole thickness of the seam. This table is used for calculating the rates for the field percentage table that is used in determining the miner's rate in the mine. Fig. 2 and Table I are used only in preparing the field percentage table and are not intended for direct use in payroll making.

For the purposes of illustration, assume that it is desired to construct a field percentage table where the present yardage rates are as follows: First 5 in., no pay; 5 to 9 in. at 5c. per in. per yd.; 10 in. and over at 10c. per in. per yd. The height of coal is 72 in.; 10 tons per lin.yd. are produced from wide places and 5 tons per lin.yd. from narrow places. Referring to Table I, for each per cent of slate, multiply the inches of slate (under the column headed 72 in. coal) by the rate per inch per yard (5c. and 10c. respectively) and divide this product by the number of tons per yard (10 tons and 5 tons respectively) to get the rate per ton. Where coal is loaded by the car, cars per yard would be substituted for tons per yard in this calculation.

Table II results from this calculation. In this table, it will be noticed that the rates have been calculated for percentages which include slate both too thin and too thick to come within the differentials mentioned. These are intended to cover the thicknesses of slate which properly falls under these differentials, but which is in a seam where the coal is of a different thickness. For example, 5 in. of slate in 72-in. coal would be equivalent to 6.4 per cent of 77 in., or 6 per cent for all practical purposes, but 5 in. of slate in a 96-in. coal would be equivalent to 5 per cent of 101 in. In the 72-in. coal there would be no rate for anything under 6 per cent, as no pay is provided for any thickness below 5 in.; however, 5 in. of slate in the 96-in. coal is equivalent to 5 per cent and it is necessary to make some provision for a rate. The above also applies to coals of lesser thicknesses. In practice, a table computed to 30 per cent will be sufficient for all practical needs.

Where the percentage method is used, the thickness of

the total seam (coal and slate) is measured and recorded together with the loader's check number, the name of the working place and the "serial number" of the working place. See Fig. 1. The thickness of the slate divided by the thickness of the total seam is entered in the column, "per cent slate of seam." By consulting a percentage table, prepared in a manner similar to Table II, the price to be paid the miner is obtained and recorded in the second column. This price is in addition to the price paid for the loading of coal and is recorded as extra compensation for handling slate.

The term "serial number," in the first column, is used as a location number for the working places. The working places are numbered consecutively each time they are visited by the party making the periodical measurement and retain this number for the period, regardless of the number of men that may work in the place during the period. The purpose of this "serial number" is to identify the rate with the working place, the idea being to rate the working place and not the miner. When the slate rate is credited to the miner in the foreman's time book, both the rate and corresponding "serial number" are recorded, and no rate is recognized at the pay-roll office unless it is identified by a serial number. This practice is for the purpose of preventing the indiscriminate paying of extra compensation for slate work.

The working places are measured and rated on the first day of the month and remain unchanged during the month. When the system was first installed, measurements were made semi-monthly; however, as this was found to be unnecessary only monthly measurements are now made. Any

revision in rates necessitated by abnormal changes in slate thicknesses are made by the mine superintendent and a new rate and serial number is given to the place or places involved.

The management of the property where this method is now employed consented to its adoption only after its practicability had been thoroughly investigated, for it was a radical departure from the customary way of paying yardage. At the mines mentioned, the "yardage" question has been solved.

AS FAR BACK AS 1854 John Bethell took out a patent in Great Britain for the manufacture of metallurgical coke from a mixture of coal and coal-tar pitch using 4 tons of the former to one ton of the latter, but even before that John Percy made laboratory experiments in the production of carbon crucibles from mixtures of gas works tar and anthracite or coke dust. In 1858 Bethell patented a method for carbonizing in a coke oven a mixture of pitch and coke breeze.

TABLE II—PRICE PER TON—CENTS

Per Cent Slate of Total Seam	5 to 9 In. Wide	5 to 9 In. Narrow	10 In. and Over Wide	10 In. and Over Narrow
1	0.35	0.70	0.70	1.40
2	0.73	1.47	1.47	2.94
3	1.11	2.23	2.23	4.46
4	1.50	3.00	3.00	6.00
5	1.89	3.79	3.79	7.58
6	2.30	4.60	4.60	9.20
7	2.71	5.42	5.42	10.84
8	3.13	6.26	6.26	12.52
9	3.56	7.12	7.12	14.24
10	4.00	8.00	8.00	16.00
11	4.45	8.90	8.90	17.80
12	4.91	9.82	9.82	19.64

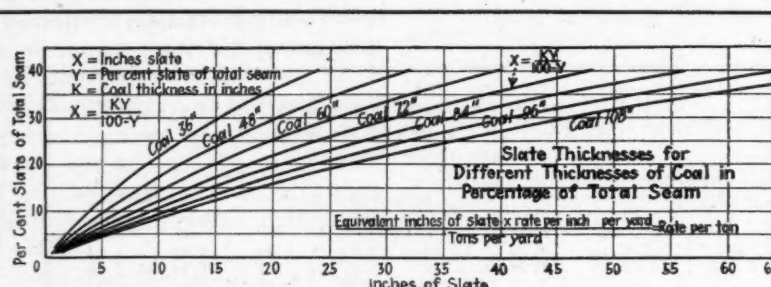


Fig. 2—Thickness of Slate Expressed as Percentages of Whole Seam

This chart is used in preparing the slate-rate percentage tables for field use. In this chart the thickness of the total seam increases as the slate increases, the coal thickness remaining constant.



# Coal, Once the Only Inanimate Source Of Heat and Power, Now Lets Oil, Gas And Water Take One-Third of Burden

WITH THE COLLECTION of preliminary figures of fuel production in 1925, the Bureau of Mines has been able to compare the rate of growth of coal production with that of its principal competitors, oil, gas and water power. A study by F. G. Tryon, summarized in the following tables, shows that though the coal production in 1925 was far below

lent in British thermal units of each of the fuels. Water power is represented by the equivalent of the fuel necessary to perform the same work. The total of the energy from all sources is given in the last column of the table. For 1925 it amounts to 22,815 trillion B.t.u.,

TABLE I—ANNUAL SUPPLY OF ENERGY FROM MINERAL FUELS AND WATER POWER IN THE UNITED STATES

(Figures represent trillions of British thermal units. Water power is represented by British thermal units of coal necessary to produce the same quantity of power.)

Year	Anthracite	Bituminous Coal	Total Coal	Domestic Oil	Natural Gas	Imported Oil	Total Oil and Gas	Total Mineral Fuels	Water Power	Grand Total Including Water Power
1819	(b)	.....	(b)	.....	.....	.....	.....	(b)	No data	(a)
1829	4	3	6	.....	.....	.....	.....	6	No data	(a)
1839	27	41	68	.....	.....	.....	.....	68	No data	(a)
1849	109	64	173	.....	.....	.....	.....	173	No data	(a)
1859	262	158	419	(b)	.....	.....	.....	419	No data	(a)
1869	464	415	879	25	.....	.....	25	904	No data	(a)
1879	822	993	1,815	119	(b)	.....	119	1,934	No data	(a)
1889	1,239	2,507	3,746	211	(c) 268	.....	479	4,225	91	4,316
1899	1,643	5,065	6,708	342	(c) 240	.....	582	7,291	135	7,426
1909	2,205	9,949	12,155	1,099	517	.....	1,616	13,771	411	14,182
1913	2,490	12,535	15,025	1,491	626	102	2,219	17,243	588	17,831
1918	2,688	15,180	17,868	2,136	775	226	3,137	21,005	837	21,842
1918	2,396	12,206	14,602	2,270	802	317	3,389	17,991	892	18,883
1920	2,437	14,899	17,336	2,658	858	637	4,153	21,489	971	22,460
1921	2,461	10,897	13,358	2,833	712	752	4,297	17,655	908	18,563
1922	1,487	11,063	12,551	3,345	820	764	4,929	17,480	1,024	18,504
1923	2,539	14,791	17,330	4,394	1,082	492	5,968	23,298	1,136	24,434
1924	2,392	12,672	15,064	4,283	1,227	467	5,977	21,041	1,167	22,208
1925d	1,690	13,700	15,390	4,535	1,228	372	6,135	21,525	1,290	22,815

(a) No figures for water power are available prior to 1889. The fuel equivalent for water power is calculated from the reported horsepower of installed water wheels, assuming a capacity factor of 20 per cent for manufactures and mines, and of 40 per cent for public utilities, and assuming that the theoretical thermal equivalent of 1-hp. hour (2,547 B.t.u.) is 7 per cent of the B.t.u.'s that would have been consumed in practice in generating from fuels 1 hp.-hr. For 1919 to 1924, however, actual reports of the horsepower-hours produced by water in electric utility plants have been used as published by the U. S. Geological Survey. (b) Less than 0.5. (c) Based on the quantity of coal displaced by gas as estimated by the gas companies at the time. (d) Preliminary figures.

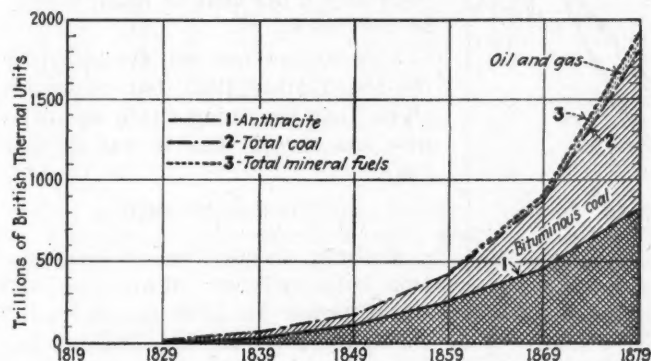


Fig. 1—Whence Our Ancestors Got Heat and Power

Anthracite furnished a large percentage of the total heat and power in earlier days. In fact in 1869 only 415 trillion B.t.u. came from bituminous coal and 464 trillion from anthracite. In 1879, however, bituminous coal was furnishing more thermal units than hard coal. Mineral oil and natural gas first began to take a part in the picture in August, 1859, when Drake drilled the first oil well at Titusville, Pa. This chart is based on the figures in Table I.

the maximum output during the war, the production of oil, natural gas, and water power has enormously increased since that time.

In order to compare the several sources of energy it is necessary to reduce them to a common denominator. This is done in Table I, which shows the energy equivalent

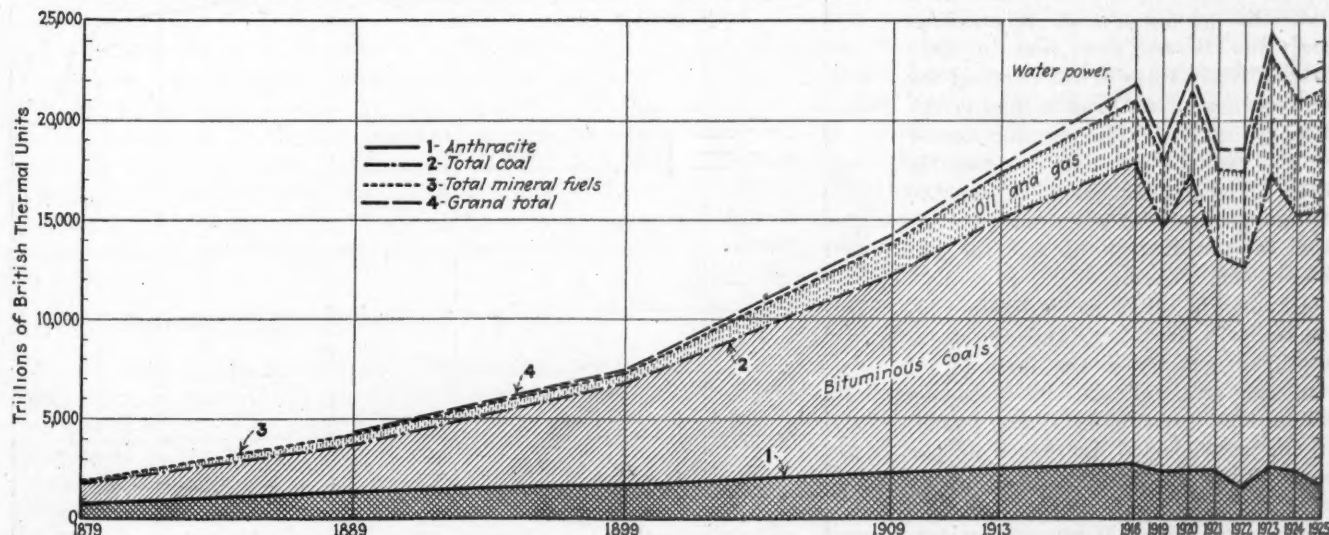


Fig. 2—Whence the Heat and Power of the United States Has Been Derived Since 1879

This is a continuation of Fig. 1 but with a smaller vertical scale. It, likewise, is based on the figures in Table I. Anthracite increased its heat output as also, of course, its tonnage till recent years. The bituminous coal heat output lies in the chart between the anthracite and the total coal line. Its decline is quite well marked since 1918, though it is already "coming back." It will be noted that, prior to 1918, no annual plottings are made in the chart. The curves would have been somewhat

different had these been made. A most remarkable expansion is seen between the line of total coal and the line of total mineral fuels, namely in oil (domestic and foreign) and natural gas. Water power on which so much stress has been laid looks meager compared with the other three sources. It is abundantly clear that the grand total of energy has been decreasing as a result of economy in use. The gain of oil and gas since 1921 has not been striking, and it must be remembered that

oil has served to create the automobile industry which would, today, have been nonexistent without it. Benzol from coal may serve in place of oil, but little of that liquid fuel was produced when the automobile was first introduced. So the advance of oil has been largely the result of the introduction of a new use of power. That, however, only brings out more clearly the staggering effect that efficiency in the use of power has had on the fortunes of the coal industry.

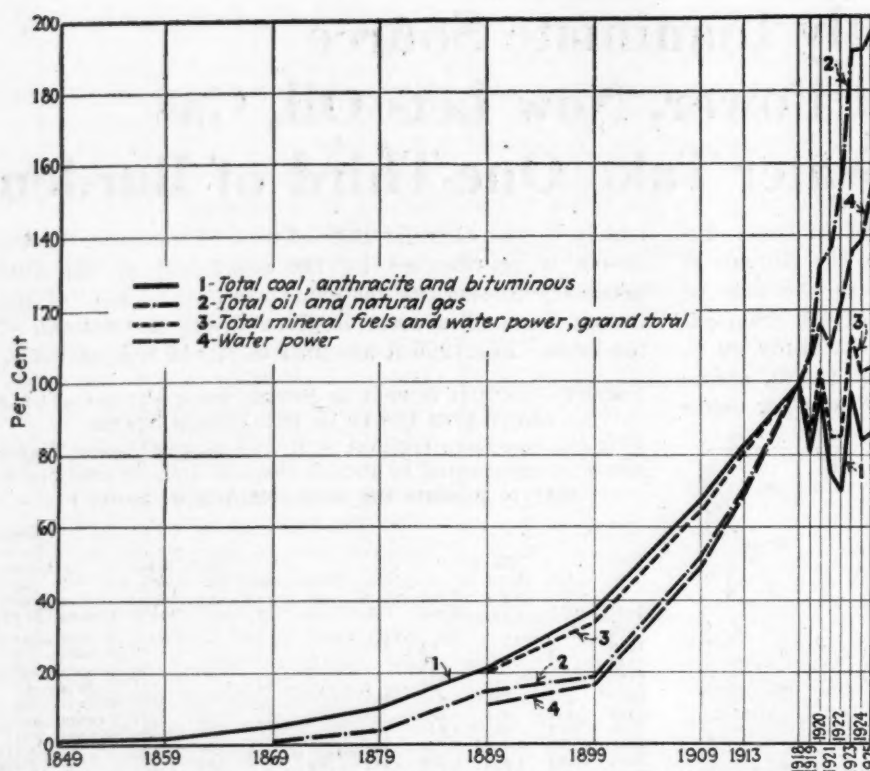


Fig. 3—Relation of Thermal Units Made Available for Fuel from Various Sources in Certain Years to Same Values from Same Sources in 1918

This chart is a plotting from Table II. All the curves come together at 100 per cent opposite the ordinate for the year 1918. The quantities are all in percentages as compared to those of that year. It will be seen how oil and gas have had a continuous if not a regular upward growth except that in 1923 and 1924 the growth stopped, but even then there was no actual decline. The great increase was between 1919 and 1923, the index figure for 1919 being 108 and 191 for 1923. What stopped this spectacular climb it would be interesting to ascertain.

the greatest in the history of the country. Thus though less coal is used than during the war, the consumption of energy from all sources has increased materially.

To make comparison easier, the figures of heat units are reduced to index numbers in Table II, taking the year 1918 as 100. It will be seen that the production of bituminous coal was 10 per cent less in 1925 than 1918, in spite of the demand for replacement of anthracite during the miners' strike. The production of all coal was 14 per cent less than in 1918. The production of oil, on the contrary, was 112 per cent greater, and the production of natural gas 58 per cent greater.

Imports of oil in the meantime increased 65 per cent, and the total supply of energy in the form of oil and gas from all sources increased 96 per cent over 1918. Water power, in the same period, increased 54 per cent. The total production of energy rose to 4 per cent above 1918. To sum up, though coal fell off notably, oil doubled, and gas and water power both rose over 50 per cent. The total supply of energy increased, but all the increase and some of the old demand went to the competitors of coal.

It used to be said that the competitors of coal produced only an in-

significant part of the total supply of energy. That is no longer true. In 1913, oil and gas contributed only 12.9 per cent of the energy of fuels; in 1918, only 14.9 per cent, but in 1925, oil and gas contributed 28.5 per cent. The share of coal declined in the meantime from 87.1 per cent in 1913, to 71.5 per cent in 1925. Coal is still the dominant source, but in 1925, at least, its share was declining. Oil and gas are the largest competitors of coal. Water power, though growing fast, contributed in 1925 only 6 per cent as much energy as the fuels.

Figures are not yet available for the trend since 1925, but there are signs that the competition of oil is now less severe than it was in that year.

#### NOW AS TO 1926

Without speculating on the relation between coal, oil-and-gas, and water power in 1926 the following facts are interesting. The production of coal up to July 31 has increased 29,741,000 tons over the production in the same time in 1925, or 9.13 per cent.

According to Dow, Jones & Co., the production of oil in the United States declined in the first six months of this year 10,996,000 bbl. as compared with the first six months of 1925 and the imports declined 4,460,000 bbl. This is a decrease in produced and

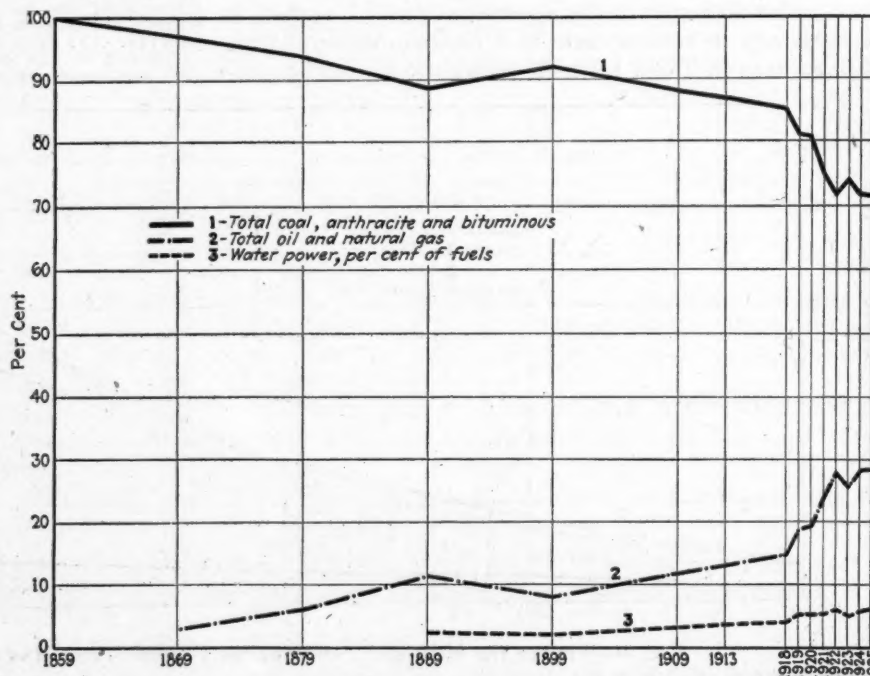


Fig. 4—Percentages of Total Quantity of Thermal Units Made Available for Fuel as Contributed by Various Sources in Certain Years

This chart is plotted from figures in Table III. Coal which furnished all the thermal units made available for fuel in 1859 had taken a humbler place in 1925 when it furnished only 71.5 per cent, the rest having fallen to oil and gas. The equivalent value of water power is not considered in the percentages given. If it had been the figure 71.5 per cent just quoted would have been only 68 per cent. There are no data available to start the water-power curve short of 1889, and the production of oil and gas by wells commenced only in 1859 and was negligible in that year.



TABLE II—RELATIVE RATES OF GROWTH OF COAL, OIL AND WATER POWER IN THE UNITED STATES

(The figures for the year 1918 are represented by the number 100, and the figures for all other years are expressed as a percentage of the 1918 rate.)

Year	An-thra-cite	Bi-tu-minous Coal	Total Coal	Do-mestic Oil	Nat-ural Gas	Im-ported Oil	Total Oil and Gas	Total Min-eral Fuels	Water Power	Grand Total Including Water Power
1819	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(b)	(b)
1829	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(b)	(b)
1839	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(b)	(b)
1849	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(b)	(b)
1859	10	1	2	(a)	(a)	(a)	(a)	2	(b)	(b)
1869	17	3	5	1	(a)	(a)	1	4	(b)	(b)
1879	31	6	10	6	(a)	(a)	4	9	(b)	(b)
1889	46	17	21	10	35	(a)	15	20	11	20
1899	61	33	37	16	31	(a)	19	35	16	34
1909	82	66	68	51	67	(c)	52	66	49	65
1913	93	83	84	70	81	45	71	82	70	82
1918	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1919	89	80	81	106	103	140	108	86	107	86
1920	91	98	97	124	111	282	132	102	116	103
1921	92	72	74	132	92	333	137	84	109	85
1922	55	73	70	156	106	338	157	83	122	85
1923	94	97	97	205	140	218	191	111	136	112
1924	89	83	84	201	158	207	191	100	139	102
1925d	63	90	86	212	158	165	196	102	154	104

(a) Less than 0.5. (b) No data for water power. (c) Imports negligible before 1913. (d) Preliminary figures.

TABLE III—PER CENT OF TOTAL BRITISH THERMAL UNITS EQUIVALENT CONTRIBUTED BY THE SEVERAL MINERAL FUELS IN THE UNITED STATES

Year	An-thra-cite	Bi-tu-minous	Total Coal	Do-mestic Oil	Nat-ural Gas	Im-ported Oil	Total Oil and Gas	Grand Total Fuels	Water Power Per Cent of Fuels
1819	100.0	...	100.0	...	...	...	...	100.0	No data
1829	58.4	41.6	100.0	...	...	...	...	100.0	No data
1839	40.2	59.8	100.0	...	...	...	...	100.0	No data
1849	62.8	37.2	100.0	...	...	...	...	100.0	No data
1859	62.3	37.7	100.0	(b)	...	...	...	100.0	No data
1869	51.3	48.7	100.0	2.8	(b)	...	2.8	100.0	No data
1879	42.5	57.5	100.0	6.2	(b)	...	6.2	100.0	No data
1889	29.3	70.7	100.0	8.6	5.0	c6.4	11.4	100.0	2.2
1899	22.5	77.5	100.0	9.2	4.7	c3.3	8.0	100.0	1.9
1909	16.0	84.0	100.0	8.2	8.0	3.8	11.8	100.0	3.0
1913	14.4	85.6	100.0	8.7	3.6	0.6	12.9	100.0	3.4
1918	12.8	87.2	100.0	8.1	10.1	3.7	14.9	100.0	4.0
1919	13.3	86.7	100.0	8.1	12.6	4.5	18.8	100.0	5.0
1920	11.4	88.6	100.0	8.0	12.4	4.0	19.3	100.0	5.0
1921	14.0	86.0	100.0	7.5	16.0	4.0	24.3	100.0	5.1
1922	8.5	91.5	100.0	7.1	19.1	4.7	28.2	100.0	5.9
1923	10.9	89.1	100.0	7.4	18.9	4.6	25.6	100.0	4.9
1924	11.4	88.6	100.0	7.6	20.4	5.8	28.4	100.0	5.3
1925d	7.9	92.1	100.0	7.1	21.1	5.7	28.5	100.0	6.0

(a) No figures for water power are available prior to 1889. Hence to make the figures comparable, the data for water power thereafter are expressed as per cent of the fuel total, but are not included in the base on which the percentage is computed. (b) Less than 0.1 per cent. (c) Figures for 1869 to 1899 based on estimated quantity of coal displaced. (d) Preliminary figures.

imported petroleum of 15,456,000 or 3.8 per cent.

However, in the same period in 1925 the stocks increased 7,586,000 tons and in the present year the stocks decreased 11,304,000 so that as oil can be obtained at any time by drilling, the coal man cannot derive much comfort from the low production and low import in the present year. There seems to be a bigger consumption of oil by 3,434,000 bbl. or 0.8 per cent than in 1925.

#### BUSINESS HAS BEEN MOVING UPWARD

In the first five months of the present year pig-iron production increased 1.7 per cent, malleable castings 13.9, steel ingots 6.9, copper 0.6, zinc 9.6; lead 6.4; automobile passenger cars 15.0; trucks 12.6 per cent. Freight transportation increased 5.3 per cent and passenger 1.6 per cent. Commercial buildings showed an increase in contracts awarded of 21.1 per cent, industrial buildings of 59.7 per cent, residential buildings of 13.4. Public building contracts showed increases from 1.8 to 16.6 per cent except that educational buildings fell 3.8 per cent. As against this, Ohio gray-iron foundries produced 7.2 per cent less, hides and leather shipped 3.8 per cent, sole leather 16.8 per cent and wood pulp 0.3 per cent. These declines in business are relatively unimportant. Industry has been active and

the improvement in business must surely be one of the causes of the large coal production and another possibly is the fact that economy in steam generation, in coke making and in metallurgical work is approaching saturation.

### Comparing Illinois and Pennsylvania Geologic Horizons

Shaw and Savage say in the Murphysboro-Herrin folio of the U. S. Geological Survey that from a study made of the fossil plants found in the coal seams and associated strata in the state of Illinois, David White concludes that the Murphysboro (No. 2 coal, Illinois nomenclature) is the lowest coal that falls within the time interval of the Allegheny formation of Pennsylvania.

He also concludes that the Herrin Coal (No. 6) may be of Freeport age, possibly as high in the stratigraphic column as the upper Freeport coal, which is the uppermost of the Allegheny formation in the Appalachian region. From these correlations it will be seen that the Carbondale formation, the coal-bearing measure of the state of Illinois, corresponds in a general way to the Allegheny formation of the Appalachian coal basin.

The Carbondale formation rests conformably on the Pottsville below it. The latter is at the base of the Pennsylvania system. The top of that system resting on the Carbondale formation, is the formation named after McLeansboro.

#### POTTSVILLE HAS TYPICAL PEBBLES

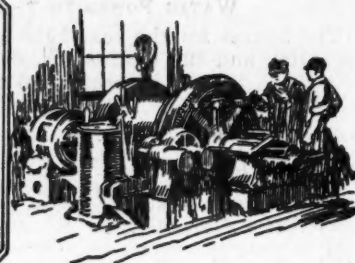
The Lick Creek sandstone which lies in the Pottsville conglomerate, the second bed from the bottom, has that coarse, pebbly appearance we associate with the pottsville. In general "it is a massive, medium- to coarse-grained, brown or buff sandstone," says J. E. Lamar in "Geology and Mineral Resources of the Carbondale Quadrangle," 1925, "Locally, where it is conglomeratic it contains pebbles of vein quartz. In some places the sand is loosely cemented and the rock is saccharoidal, but in general the cementation is moderately firm.

"One exposure shows zones, or beds, containing quantities of silicified fossil debris and small cherts, along with quartz pebbles. For the most part the conglomeratic materials occur in zones, or beds, from 1 to 10 ft. thick, averaging about 3 ft. Some of these beds are continuous for short distances, but most of them thin out rapidly and are seldom traceable from gully to gully. The quartz pebbles in the Lick Creek measure run from fine grains to pebbles of 2 1/4 in. diameter, though a more nearly average size for the larger pebbles is 1 1/2 in." The other members of the Pottsville formation are finer-grained and mixed with shales.

Coal is found in the Pottsville formation of Illinois, but it is apparently of little value. "In general," says Mr. Lamar, "these coal beds may underlie a few acres, half a square mile, or perhaps even a square mile, but they are commonly distinctly local. Any assumption as to the extensive continuity of these coal beds is unwarranted except as determined from actual outcrops or well records. All the mines that have been worked in the Pottsville formation are abandoned at present or worked only seasonally except the mine in the north bank of Clay Lick Creek where 3 ft. 6 in. of coal, with a shale parting 1 ft. 6 in. thick lying 2 ft below the top of the coal, is being mined."



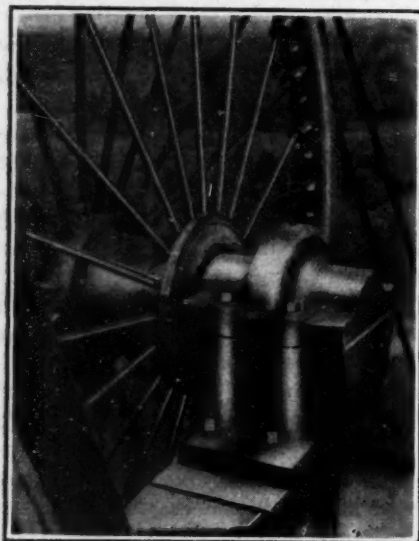
## Practical Pointers For Electrical And Mechanical Men



### For Long Life Rims of Hoist Sheaves Should Have Steel Linings

Wide variations may be noted in the life of hoisting sheaves. This is largely due, no doubt, to a difference in operating conditions, but not all of it can be thus explained. The variables inherent in the plants are the depth of the shaft, the angle of fleet, the load on the rope and the speed and acceleration of hoisting. A marked variation in any one of these factors has, of course, an appreciable influence on the life of the sheave.

At most shafts the sheaves are made with cast-iron rims and have to be replaced at intervals of from six months to eight years of normal operation. The average sheave is replaced before a half-million tons of coal is hoisted; some have a much longer life and some have to be replaced after a much shorter period of service.



**Steel-Lined Sheave at New Orient**

This sheave is installed over one of the hoisting compartments of the main shaft at the world's largest mine. Although it was installed at the beginning of operation and has been instrumental in hoisting half (about 1½ million tons) of the production of this plant to date, it has required no attention. The original steel, rope-channel lining does not yet show any appreciable wear. Note how this lining is attached by bolts to the cast rim of the sheave. By this arrangement the lining can be replaced in segments without disturbing the sheave or even so much as lifting the rope.

The limits in the life of the sheaves are no wider than the difference in the quality of the iron from which they are made. Experience has shown that a high-grade sheave will give service out of all proportion to its selling price and is worth all that it costs and much more. It is not the only mine equipment where quality pays.

#### SPOKES REVEALED BY WEAR

Replacements are made when the rim is worn on the center till the ends of the spokes are exposed to view, or when either flange of the groove is broken or badly worn.

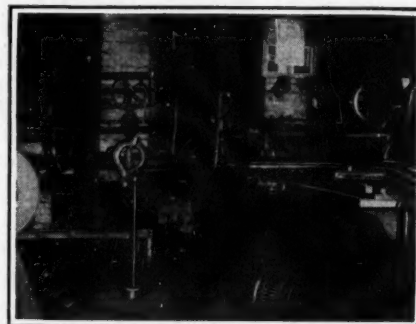
At a few mines the sides or flanges of the rope channel on the sheave receive far more wear than the bottom and consequently break before the stock under the rope channel is much worn. In this case a sheave will last less than half its normal life. Fortunately, this trouble, which is due to the sheave being off center, is not at all common. When this fault cannot be remedied by usual adjustments, a transit should be used for lining up the sheave shaft.

#### REPLACE LINING IN SEGMENTS

The superiority of the steel-lined, rope-channel type of sheave is unquestioned. The rope channel of the cast-iron rim is lined with steel segments which are held in place by countersunk bolts as shown in the accompanying illustration. A steel lining of this kind has a life which is three to five times that of an iron rim. If kept in proper alignment the sheave itself will last indefinitely. When the lining wears out it can be replaced, segment by segment, without disturbing the sheave or lifting the rope. Experience shows that steel-rimmed sheaves should always be used and preferably those that are provided with replaceable linings.

### Rotary Table Brings Lathe Tools Within Reach

When a wide variety of work, such as must be handled in a mine shop, is performed on a lathe, a number of accessories and tools are needed. It is always a problem to



**Showing Table Back of Lathe**

The top is mounted on ball bearings. The lathe operator reaches over the lathe bed and turns the table so as to bring the necessary tool or accessory within reach.

arrange these so they can be reached from the operator's normal position when at work at the lathe.

Usually, a tool bench or rack would be in the way if set in front of the lathe. To locate it back of the lathe requires special construction. The accompanying photograph shows the use of a rotary table back of the lathe. This is in the Coaldale shop of the Edgewater Coal Co., near Hellier, Ky.

The table top is about 3 ft. in diameter and is mounted on ball bearings. Extending upward from the outside edge of the table are five racks with pegs on which are hung the accessories such as feed gears and dogs. The cutting tools lie on the table around the edge.

#### ROTATES TABLE WITH HAND

The use of this rotary table makes it easy for the lathe operator to pick up any accessory or tool. From his regular position he reaches over the lathe bed and turns the table so as to bring the necessary item within reach.

Little helps like this aid in speeding accomplishment and lightening the day's toil.



## News Of the Industry

### Consumers' Soft Coal Stocks July 1, 39,000,000 Tons, Normal for Season; Anthracite Deficit Virtually Made Up

Stocks of bituminous coal in the hands of consumers are about normal for this season of the year and stocks of anthracite are rapidly recovering from the effects of the strike in the hard-coal region last winter, according to a survey as of July 1 just completed by the U. S. Bureau of Mines. The survey covered 5,000 consumers in all parts of the United States.

On July 1 commercial consumers and retail dealers had on hand a total of 39,000,000 tons of bituminous coal. On April 1 the stocks were 40,000,000 tons. During the month of April production was less than consumption and about 4,000,000 tons were withdrawn from stocks. In May and June the condition was reversed; production exceeded consumption and 3,000,000 tons were added to stocks.

In comparison with June 1, 1924, when consumers still had 51,000,000 tons on hand out of the heavy reserves accumulated in anticipation of a possible strike at the end of the 1923 wage agreement, the stocks on July 1, 1926, show a large decrease. In comparison with the stocks on June 1, 1925 (38,000,000 tons), the present stocks show an increase of 1,000,000 tons.

#### Effect of Strike Passes

In comparing stocks of coal on different dates allowance must be made for changes in the rate of consumption. In the first quarter of 1926 bituminous coal was in demand to make good the deficit in household fuel caused by the anthracite strike, and the rate of consumption was abnormally high. At that rate the stocks on April 1 were sufficient to last 26 days. At the lower rate of consumption prevailing in May and June the stocks on July 1 were sufficient to last 34 days. Measured in days' supply the present reserve is slightly larger than that on June 1, 1925, which was sufficient to last 32 days.

In addition to the quantity in the hands of consumers on July 1, there were at least 174,000 tons of bituminous coal in producers' storage at the mines or at intermediate points en route to market and 888,000 tons loaded in cars but unbilled at the mines.

Stocks of anthracite in the yards of retail dealers on July 1 were sufficient to last 40 days at the rate of delivery to consumers prevailing during May and June. The deficit in stocks caused by the great strike has been largely

made up. The tonnage of anthracite on hand July 1 was somewhat less than on the corresponding dates of 1925 and 1924, but the tonnage of bituminous coal was greater. The total quantity of all coal in retail yards at present—anthracite and bituminous combined—is quite equal to that at corresponding periods in other recent years.

A group of 21 byproduct plants supplying gas for city use had stocks of 334,000 tons of coke on July 1, as against 53,000 tons last April and 722,000 tons on June 1, 1925.

The deficit in retail coal dealers' supplies of anthracite caused by the strike had been largely made good by July 1. During the five months cessation of production of fresh-mined coal the stocks of domestic sizes both in the hands of producers and retail merchants were almost entirely exhausted. To replace the missing anthracite retailers bought heavily of bituminous coal. Therefore on July 1 retail stocks of bituminous coal were somewhat above normal for this season and stocks of anthracite were somewhat below normal, as shown in Table II. At the rate their consumers were asking for coal, the anthracite stocks of these retailers on July 1 were sufficient to last 40 days and the bituminous coal stocks were sufficient to last 43 days.

Reports from the dock operators show that on May 1 the quantity of anthracite in storage on the Lake docks was 17,895 net tons. By July 1 it had risen to 556,577 tons. Though less than the amount on hand June 1, 1925, when nearly 1,000,000 tons had been accumulated on the docks in anticipation of a possible strike, this was greater than the reserve at corresponding periods in 1923 and 1924. Comparable figures for recent dates are: Aug. 1, 1921, 1,090,

258 tons; Sept. 1, 1922, 71,503 tons; July 1, 1923, 447,610 tons; June 1, 1924, 450,000 tons; June 1, 1925, 955,052 tons, and April 1, 1926, 16,689 tons.

Stocks of coke at byproduct plants available for domestic use, which were practically exhausted during the anthracite strike, are now increasing again, as is usual in the summer. A group of 21 byproduct plants supplying gas for city use and producing coke suitable for domestic fuel had 334,000 tons of coke in stock on July 1. Fig-

Table II—Coal in Yards of a Selected List of Retail Coal Dealers

(In Net Tons)			
Date	Anthracite*	Bituminous†	Total
1919—January 1.....	948,213	1,549,420	2,497,633
1920—June 1.....	557,820	470,746	1,028,566
1921—August 1.....	1,522,369	1,487,360	3,009,729
1922—March 1.....	1,112,614	1,115,118	2,227,732
1923—March 1.....	286,997	781,686	1,068,683
1923—July 1.....	783,745	1,238,261	2,022,006
1924—January 1.....	1,021,465	1,457,369	2,478,834
1924—June 1.....	1,125,207	1,068,119	2,193,326
1925—June 1.....	1,289,050	1,025,543	2,314,593
1926—April 1.....	649,378	957,530	1,606,908
1926—May 1.....	901,040	871,437	1,772,477
1926—July 1.....	1,064,624	1,236,638	2,301,262

\*The number of dealers reporting their stocks of anthracite on each date was 614.

†The number of dealers reporting their stocks of bituminous on each date was 845.

ures for other recent dates are: March 1, 1922, 987,000 tons; Sept. 1, 1924, 1,114,000 tons; June 1, 1925, 722,000 tons; April 1, 1926, 53,000 tons, and May 1, 1926, 151,000 tons.

The stock reports actually received constitute over 65 per cent of the estimated total. The figures include coal in the yards of retail coal dealers, but exclude steamship fuel and coal in the cellars of householders, concerning which statistics are not available. Coal on the upper Lake docks also is excluded, being considered as coal in transit.

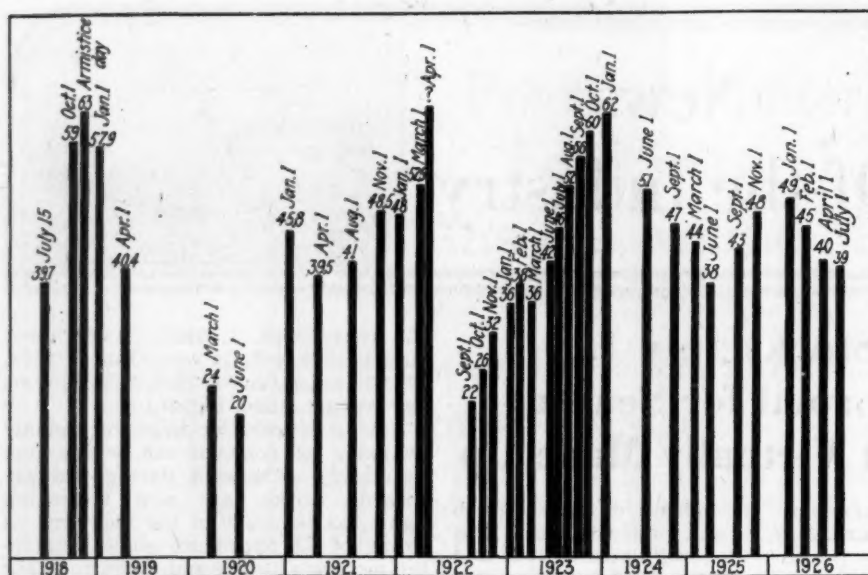
Reports from consumers in conjunction with the records of production, imports and exports indicate that during May and June withdrawals from supply averaged 8,600,000 tons of bituminous

Table I—Days' Supply of Bituminous Coal in Hands of Various Classes of Consumers in the United States, Jan. 1, 1919, to July 1, 1926\*

(Figures represent number of days that supply would last at rate of consumption at time of stock taking.)

	Jan. 1, 1919	June 1, 1920	Aug. 1, 1921	Mar. 1, 1922	Mar. 1, 1923	July 1, 1923	Jan. 1, 1924	June 1, 1924	June 1, 1925	Apr. 1, 1926	May 1, 1926	July 1, 1926
Byproduct coke plants.....	32	8	31	39	19	26	35	34	20	21	20	23
Steel plants.....	42	11	46	48	26	35	43	56	27	24	25	26
Other industrial.....	65	24	54	54	34	46	55	53	32	32	36	35
Coal-gas plants.....	81	22	79	82	58	89	91	88	68	60	71	72
Electric utilities.....	49	22	44	54	34	48	51	63	48	46	54	52
Coal dealers (bituminous).....	39	10	42	23	11	39	34	40	31	14	31	43
Railroads.....	32	10	3	42	16	28	44	50	32	23	25	27
Total bituminous.....	42	15	39	43	22	37	46	49	32	26	31	34

\*These figures are based on incomplete data. †Calculated at average rate of consumption during May and June. ‡No data.



**Total Commercial Stocks of Bituminous Coal, July 15, 1918-July 1, 1926**

Figures represent millions of net tons and include coal in the hands of railroads, industrial consumers, public utilities and retail dealers. Coal for steamship fuel, on lake docks, in transit and in the hands of householders is not included.

coal per week. This figure includes exports and the consumption of all users who buy direct in carload lots. The consumption of those users, including hotels, apartment houses, office buildings and many small industrial plants, who buy through retail coal dealers is represented by the deliveries made by the retailers to their customers. The figure of 8,600,000 tons is much less than the rate prevailing in February and March, when bituminous coal was in demand to replace anthracite.

#### Supply Good for 34 Days

At the rate of consumption prevailing in May and June, the stocks of consumers on July 1, if evenly divided, would last 34 days. The largest reserves were carried by the coal-gas plants, which had, on the average, enough for 72 days; the smallest by the coke plants, with an average of 23 days. Table I compares the days' supply held by each class of consumers on representative dates. In comparison with June 1, 1925, an increase is shown for byproduct coke ovens, general industrial plants, gas and electric utilities, and retail coal merchants, and a decrease for steel plants and railroads. All classes of consumers combined on July 1 had a reserve 2 days greater than that on June 1, 1925. In using the figure of days' supply it must be remembered that some localities habitually carry heavy stocks and others very small stocks, and at any one time some consumers will be found with large reserves and some with no reserves at all.

The adequacy of a given reserve depends upon the possibility of an interruption to the movement from mine to point of consumption. In general, localities remote from the mines carry much heavier stocks than do those close to the mines or to intermediate reservoirs such as the upper lake docks. This is well illustrated by the reports of the general industrial plants, other than steel works and coke ovens. They are the largest single group of coal users both as to number and tonnage consumed and, being widely scattered over

the country, their stores are a sensitive index of conditions in the coal market. On July 1, industries on the upper Peninsula of Michigan had a reserve sufficient for more than 90 days. For New England, a region of heavy reserves, the average was 70 days. In lower Michigan and Wisconsin, in New York and New Jersey, in the South Atlantic States, and in the states of the Rocky Mountains and Pacific Coast, the average ranged from 30 to 60 days. In Pennsylvania, West Virginia and most of the states of the Mississippi Valley the average was less than 30 days.

In comparison with June 1, a year ago, the quantity in the hands of industrial consumers on July 1 shows an increase of 3.3 per cent. The largest increase was in southern Michigan. Other states in which a marked increase occurred were Pennsylvania and New Jersey. In New York and New England, on the contrary, consumers reported a decrease.

Coal-gas plants in New England on July 1 had gas coal sufficient to last 93 days; for New York State the average was 94 days; for Illinois, 35 days; for Michigan, 66 days; for Wisconsin, 29 days. The entire group of 264 coal-gas works reporting had an average reserve of 72 days.

#### Utilities Have 52 Days' Supply

Like the gas utilities, electric-light and power plants carry heavy reserves of coal. A total of 596 plants had an average stock of 52 days on July 1. For New England the average was 75 days; for New York State, 37 days; for New Jersey, 87; Pennsylvania, 73; Ohio, 61; Michigan, 112; Illinois and Indiana, 40 days each. In comparison with June 1, a year ago, the electric plants, in most states, showed an increase.

The total quantity of bituminous railroad fuel coal on hand July 1, according to the American Railway Association, was 9,398,000 tons, sufficient at the current rate of consumption to last 27 days. From April 1 to May 1 the railroads decreased their stocks by 704,000 tons. Beginning with the latter part

of May they began to rebuild their stocks and between May 1 and July 1 a total of 1,012,000 tons was added to storage.

Stocks of bituminous coal held by the railroads on representative dates have been as follows in net tons:

Jan. 1, 1919	13,644,000	Jan. 1, 1924	19,368,000
March 1, 1920	4,784,000	June 1, 1924	15,530,000
June 1, 1920	3,744,000	June 1, 1925	10,219,000
April 1, 1922	19,843,000	April 1, 1926	9,090,000
Sept. 1, 1922	4,401,000	May 1, 1926	8,386,000
July 1, 1923	10,667,000		

Coal brought to the surface, made ready for the market, but not yet delivered to a retail dealer or a consumer may be considered "in transit." The largest element in this mobile reserve is the coal in railroad cars, which, though it has never been accurately measured, is known to run into millions of tons. From the current reports of coal loadings it is evident that between May 1 and July 1 the quantity in cars en route to destination increased.

A few bituminous producers store coal at their mines. The quantity stored on July 1 was small. From a list of 43 companies who have at some time in the past stored in quantity at the mines or at some intermediate point the Bureau has received reports of only 174,000 tons so held on July 1, or 15,000 tons less than the figures for April 1, 1926, the date of the last stock report. In March, 1923, these same companies were carrying 808,000 tons on hand.

#### "No Bills" Decrease

The total quantity of unbilled bituminous coal at the mines was 1,033,000 tons on May 1 and 888,000 tons on July 1, as against 1,006,000 tons on April 1 and 814,000 tons on June 1, a year ago.

Reports collected by the Bureau of Mines direct from the dock operators show total stocks of bituminous coal on the docks of Lakes Superior and Michigan of 2,052,547 tons on May 1 and 4,910,379 tons on July 1. The figure on Aug. 1, 1921, was 8,189,000 tons; March 1, 1922, 5,160,000 tons; July 1, 1923, 3,991,000 tons; June 1, 1924, 4,150,000 tons; June 1, 1925, 3,792,297 tons, and April 1, 1926, 2,892,321 tons.

#### Lambie's Safety Day Plans Practically Complete

Seven hundred and eighty men (130 teams) will compete in the fourth annual West Virginia first-aid contest and first annual safety day to be held in Huntington, Aug. 21, according to an announcement by Robert M. Lambie, chief of the West Virginia Department of Mines.

Seventeen handsome cups suitably engraved, to be awarded as prizes, are now on exhibit in a downtown show window. Instead of awarding the large cup for a year only, it will be given outright as a permanent trophy to the winning team.

Mr. Lambie expects that over 12,000 people will be in attendance. The day is planned as a celebration as well as a contest. An amusement park has been chartered for the event and all attractions therein will be free to the visitors. The aim is to impress on the miners of the state the effort that is being made to protect them from accidents.



## More Favorable Outlook Foreseen For Coal Industry in Stock Report Just Issued by Bureau of Mines

By Paul Wooton

Washington Correspondent of Coal Age

Bituminous stocks of 39,000,000 tons on July 1 may be described as normal. It is practically the amount held by consumers on the corresponding date last year and is very much less than the heavy reserves on hand in 1924, when consumers had not liquidated the stocks laid in in anticipation of a strike on April 1. It is now seen clearly that these large stocks were an important cause of the great depression in the coal market in 1924.

Publication by the Bureau of Mines of these authoritative figures sets at rest the rumors based upon the figures of the National Association of Purchasing Agents, which at times show coal reserves to be abnormally high and at other times abnormally low.

Even the stocks of anthracite, in spite of last winter's strike, which lasted five and one-half months, are not far below normal. Retail dealers have forty days' supply at the rate their customers were buying in May and June. The amount in retail yards is only slightly less than on the corresponding dates of 1924 and 1925. The tonnage of bituminous coal in retail yards is somewhat greater.

### Consumption Unusually Heavy

Publication of this report makes it possible to calculate the rate at which coal is being consumed. Production of bituminous coal during the first half of 1926 ran 14 per cent ahead of production during the same period of 1925. Likewise, consumption of coal has been greater—greater in fact than in any previous year. Though production is less than in 1918, a large part of the output in that year was going into storage, whereas in 1926 consumers have been drawing on storage. Actual consumption and exports of bituminous coal in 1918, allowing for changes in stocks, was 551,000,000 tons. During the first five months of 1926 the country was consuming and exporting coal at the rate of 555,000,000 tons for the year. This figure discounts the extra demand to replace anthracite during the strike.

The stock report carries distinctly encouraging news for the producer of coal who has been concerned that the market failed to keep on growing. At

the same time the figures show that petroleum and water power have been used to a greater extent in 1926. The production of power from hydro-electric plants during the first five months of 1926 also happened to be 14 per cent greater than in the same period of 1925. Although the production of oil in 1926 has been running behind 1925, the deficit has been made up from storage. The total amount of oil consumed has been somewhat greater in the first half of 1926 than in the corresponding period of 1925. In spite of the fact that refiners are cracking further into the crude, there has been no decrease in the amount of fuel oil thrown upon the market. At the rate indicated by the figures for the first five months the amount of fuel oil and crude petroleum burned as fuel is the equivalent of 100,000,000 tons of coal.

### Fuel-Oil Prices Mount

The producers of coal have the encouragement, however, that fuel-oil prices are distinctly higher than last year. In July, 1925, fuel oil was selling in Oklahoma at 92c. a barrel. The general trend in 1926 has been upward and at the end of July the Oklahoma price was \$1.32 per barrel.

With coal, water power and petroleum all showing increases, it is clear that the United States is producing more energy than ever before. The increase over 1913 is 35 per cent and over 1918 is 13 per cent. These figures represent the consumption of energy-producing materials and do not refer to production. They allow for changes in stocks.

The outlook for coal as indicated by the first half of 1926 is much more favorable. The country is consuming more power and more heat than ever before. While the competition of oil

### This Miner Finds Wages Adequate in America

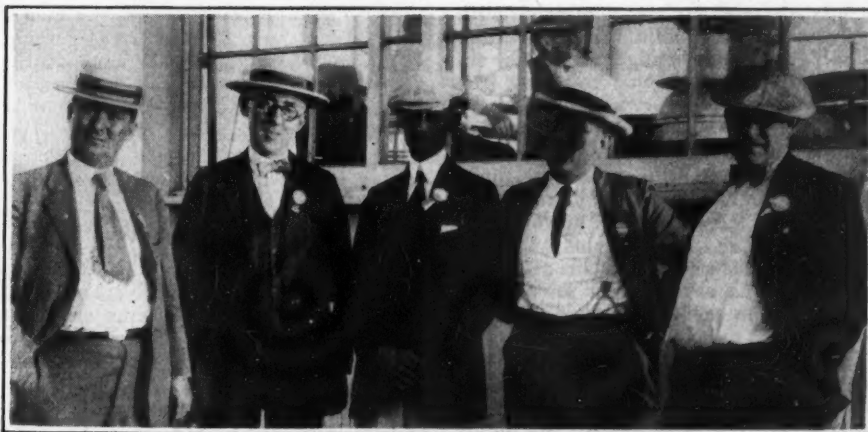
After digging coal in Pennsylvania for twenty-two years, John Puskar, of Calumet, has saved money enough to return to his wife in his native country, Czechoslovakia. John came to America twenty-two years ago. Mrs. Puskar was afraid to cross the ocean. Even though separated by the broad Atlantic, they kept up a continuous correspondence, John working to get money enough to retire to his native land and his wife maintaining the home over there. John looks forward to a happy reunion and a long life of ease in his native country.

and water power has been severe, there are indications that this competition will become a less important factor with which to reckon.

### Walsh Strong for Rock Dust

Many coal-mining companies, since receiving notification that the Associated Companies would require all gaseous or dusty bituminous coal mines to be rock-dusted to obtain workmen's compensation have cited the book entitled "The Rock Dust Remedy," by Harry Phythyon, state inspector for the 27th bituminous district of Pennsylvania, which purports to prove that rock-dusting is unnecessary. According to G. B. Butterfield, general manager of the Associated Companies, this is at variance with the views held by a vast majority of coal mining engineers who have thoroughly studied the problem.

Mr. Phythyon's views, says Mr. Butterfield, do not agree with those of the Department of Mines of Pennsylvania, in proof of which he quotes a letter from Joseph J. Walsh, Secretary of Mines of Pennsylvania, in which that official states that his department "desires particularly that all gaseous bituminous mines be rock-dusted."



At Illinois Mining Institute Meeting on the Mississippi

The above quintet of notables were among those aboard the Steamer "Cape Girardeau," June 24-27. Left to right: I. N. Bayless, superintendent, Kathleen mine, Union Colliery Co., Dowell, Ill.; D. J. Carroll, consulting engineer, Chicago; John A. Garcia, consulting engineer, Chicago; W. E. Kidd, state mine inspector; J. H. Steinmesch, Desloge Consolidated Lead Co., Desloge, Mo.

**EDITOR'S NOTE**—The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and COAL AGE editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.

### Ohio Operators Seek Lower Scale for State; May End Central Competitive Pact

Ohio operators seek to withdraw from the Central Competitive Field in signing wage agreements and negotiate as a state with the miners' union. This was the high spot of a lengthy session of the board of directors of the newly organized Ohio Coal Operators Association held at the Neil House, Columbus, on Aug. 10, when the policy of the association in regard to labor was defined.

While desirous of avoiding a strike or suspension, the Ohio producers feel that a concession in the mining scale in the Buckeye State is absolutely necessary for a resumption of mining in competition with the non-union fields of West Virginia and Kentucky. The consensus was that it is a question of the operators and miners getting together to save the coal industry in Ohio.

To bring this about a resolution was adopted in the form of a letter addressed to Lee Hall, president of District No. 6 of the United Mine Workers, asking for a joint conference to be held in Columbus Aug. 24 at 10 a.m.

#### Request Joint Meeting

The letter is as follows: "At a meeting of our association today we were instructed to request you, as president of District No. 6, United Mine Workers of America, to call a meeting of mine workers of the State of Ohio in joint convention with the operators of the State of Ohio at the Neil House, Columbus, at 10 a.m., Aug. 24, 1926, for the purpose of considering a scale of wages on which the idle mines of Ohio may be opened. Will you please advise promptly if you will arrange with your membership for such a meeting, directing your reply to S. H. Robbins, president, Cleveland, and sending a copy to J. S. Jones, secretary of the association, Columbus, Ohio."

Those attending the meeting were practically unanimous in the belief that Ohio should not join with the three other states in the Central Competitive Field to arrange a wage scale. Ohio operators, they urged, should negotiate as a state and not be combined with western Pennsylvania, Indiana and Illinois in negotiating wage agreements. This is believed to sound the death knell of the Central Competitive Field agreements, which have been made for more than 30 years and which, in the opinion of Ohio producers, have been a millstone around their necks.

Operators from practically every field in the state report that the rank and file of the workers are desirous of returning to the mines, after an idleness of from four months to more than a year.

President Lee Hall of the Ohio miners' organization has promised to reply to the letter. So far as can be ascertained the position of the union officials has undergone no change and a refusal is expected.

One of the operators, in commenting on the action of the board of directors, said, "We do not want a strike or any trouble with the miners. We do, how-

### Wolvin Urges Coal Subsidy For Nova Scotia

R. M. Wolvin, president of the British Empire Steel Corporation, appeared before the Canadian Royal Commission investigating the claims of the Maritime Provinces at Sydney, N. S., and urged that greater protection be afforded the coal and steel industries of Nova Scotia, that coking plants be established in order to dispose of the quantities of slack coal available and that the subvention granted by the Dominion Government a few years ago to permit of the marketing of Nova Scotia coal in central Canada be restored. In elaborating his argument, Mr. Wolvin stressed the importance from a national standpoint of the continuance of the great coal and steel industry within the boundaries of the Dominion and emphasized the strategic position occupied by the properties of the British Empire Steel Corporation with relation to Great Britain and the trade routes of the world.

He said: "It is Nova Scotia's right to demand tariff protection against imported coal and steel and national aid in overcoming the transportation handicap which now hinders the full entry of Nova Scotia's products into the Canadian markets. Full compensation for expenditures from the national purse which may be required for transportation subventions will be obtained by adequate development of Nova Scotia's coal fields and by the increased national security given by a prosperous and developing coal and steel industry."

President Wolvin submitted a brief setting forth the case for the coal and steel industries of Nova Scotia and was questioned at some length by the chairman of the commission, Sir Andrew Rae Duncan.

ever, want a scale under which we can produce coal and sell on the market to compete with other districts. It is not too early to look toward a revision of the Jacksonville scale, which expires April 1, 1927, and so we have taken this action. We are working not only for the operators but also for the miners in that our object is to reopen the mines and thus give the miners employment."

#### Conference Set for Aug. 24

A meeting of operators of Ohio has been called for at the Neil House at 9 a.m. Aug. 24. This meeting will take place, even if the union officials fail to accept the invitation for a joint conference upon that date.

William Collins, Cleveland, vice-president of M. A. Hanna & Co., and F. E. Taplin, also of Cleveland, president of the North American Coal Corporation, with large interests in Ohio, have been added to both the executive committee and the board of directors of the association.

### American to Plan and Open Russian Mines

Signal recognition of the efficiency of American coal mining men and the superiority of American-made machinery in operating coal mines was shown recently in the selection of E. Frank Miller, for years connected with the Bertha-Consumers Co., Pittsburgh, Pa., to assist in designing and opening plants for the Russian Government. A few days ago he sailed for the Ukraine. He will be located at the mines of the Donogul Trust, in the Donetz Basin near Kkarkoff.

Mr. Miller will assist and advise on the methods of opening two mines, making designs and outlining mode of construction. After the first two mines are opened work will start on opening 25 more mines, all of which will be of modern construction, each to be of 5,000-ton capacity. All of the machinery used is to be built in the United States.

Mr. Miller started working in the mines at Monogahela City and has had wide experience in the coal industry in Pennsylvania, Ohio, West Virginia, Illinois and Kentucky.

### New Mexican Law Makes Coal National Property

Regulations have just been officially published by the Mexican Government making effective the new mining law under which the government assumes supervision over numerous details of the mining industry, in which many Americans are heavy investors.

Under the provisions of the new law all commercially valuable minerals and precious stones are the property of the nation, including coal, which had not so been declared by previous laws.

The law prescribes extensive details under which the government may grant mining concessions and an elaborate system of inspection and supervision by government agents. It stipulates that concessions may be forfeited unless a certain amount of work is done on them.

### Defer Promotion of Company To Mine Saghalien Coal

Shanghai, China, May 30.—Promotion of a Saghalien coal company, which was recently reported to be progressing, will not be put through now, it is learned here. The promoters hoped to get financial aid from the Japanese Government to insure the distribution of 7 per cent per annum in dividends. The amount offered, however, does not make this distribution possible. The aid offered by that source is a million yen, to be paid in a lump sum, according to informed sources. The company is to take over the investments made by the Saghalien Developments Association, to which 3,200,000 yen is to be paid, in addition to the debt of 2,400,000 yen to be liquidated on behalf of the association. The promoters say that under these circumstances it would be impossible to close the subscription lists with shares taken up.



## Cook Rallies Strikers As Peace Seems Nearer In British Coal Strike

Belief that the end of the British coal strike, now in its sixteenth week, is approaching, is growing. Not the least significant indication of this is seen in the feverish activity of "Emperor" Cook, miners' federation secretary. He made a "whirlwind" oratorical campaign last week in the South Wales coal field, exhorting the strikers to face "the facts of the situation." He assured them that he and the other officers of the union would not accept any agreement with the mine owners containing a provision for an eight-hour day and pledging his hearers that no conditions would be accepted until submitted to the men.

### Cook Urges New Negotiations

Mr. Cook issued an appeal to the government on Aug. 13 urging the initiation of new negotiations with the strikers. "Let the government invite the miners' leaders to meet them," he said, "declaring definitely against enforcing longer hours and accepting the principle of a national agreement and a national minimum wage and being prepared to recognize the necessity for reorganization of a drastic character. Then peace is possible in the mining industry."

The "bishops' plan" to end the strike was rejected by the miners by a vote of 367,650 to 333,036. The chief objection to this proposal was the provision that all questions not settled directly by the operators and miners should be decided by a joint board with an independent arbitrator. The action of the miners was somewhat of a surprise as the federation leaders had recommended its acceptance. The decision is thought



### "Emperor" Cook Finds a Title Has Disadvantages

This cartoon, reprinted from the London *Evening News*, is one of a series which appeared in *The Coal Strike Times*, a periodical issued by the British mine owners, which devotes much space to attacks on the miners' federation secretary.

to meet with the approval of the government, however, as there has been much objection to the interference of the bishops. When the outcome of the vote was announced a call was issued for another conference of delegates on Monday of this week. On going to press the result of the meeting had not been received.

The delegation of the British Miners' Federation and the Trades Union Congress visiting this country to raise funds for the relief of the families of striking miners inaugurated their drive to obtain \$1,000,000 in America at a luncheon for Miss Ellen Wilkinson, Labor Member of Parliament, in New York City last week.

## Turner Outlines Full Roster Of Bureau of Mines

An unusually large proportion of the staff of the Bureau of Mines hold degrees in engineering. Director Turner feels that this is one of the assets of the Bureau and the term is to be incorporated in titles wherever possible.

In the new plan of organization the head of each branch is to be called the chief; the head of each division is to be known as chief engineer; the head of each section is the supervising engineer, and the head of each unit is the engineer-in-charge. This form of descending scale will be carried out as far as possible in the entire scheme of organization.

Under the new arrangement the roster of the principal members of the Bureau of Mines staff, with their titles as now assigned, is as follows: Scott Turner, Director; Joseph H. Hedges, assistant to the director; John D. Secrest, chief clerk; Carl E. Julihn, chief engineer, information service division; O. P. Hood, chief of the technologic branch and chief engineer of its fuels division; Harry H. Hill, chief engineer, petroleum and natural gas division; Roscoe A. Cattell, chief engineer, helium division; Daniel Harrington, acting chief engineer, mining research division; Dorsey A. Lyon, chief metallurgist and supervisor of stations; Charles E. Munroe, chief explosives chemist; George S. Rice, chief mining engineer; Charles P. White, chief of the economics branch and head of its coal division; Frank J. Katz, chief engineer, mineral resources and statistics division; Frank L. Hess, chief engineer, minerals and metals division; Harry H. Hill, chief engineer, petroleum economics division; Royd R. Sayers, chief of the health and safety branch and Bureau chief surgeon.

The superintendents of the field stations, all of whom are engineers, at present are as follows: A. C. Fieldner, Central station, Pittsburgh; Nicholas A. C. Smith, Petroleum station, Bartlesville; Oliver C. Ralston, Pacific station, Berkeley; B. W. Grandrud (acting), Southern station, Birmingham-Tuscaloosa; Chauncey F. Cook, Helium plant, Fort Worth; Thomas L. Joseph, North Central station, Minneapolis; Oliver Bowles, Non-metallic station, New Brunswick; Edmund S. Leaver, Rare and Precious Metals station, Reno; H. M. Lawrence (acting), Mississippi Valley station; Thomas Varley, Intermountain station, Salt Lake City; Byron M. Bird (acting), Northwest station, Seattle; Eugene D. Gardner, Southwest station, Tucson.

The field offices of the Bureau are manned at present as follows: Clifford P. Bowie, San Francisco; Joseph W. Horne, Boulder; George E. McElroy, Butte; H. B. Hill, Dallas; E. H. Denny, Denver; Kenneth B. Nowles, Laramie; Frank W. Davis, Lincoln; Arthur W. Fahrenwald, Moscow; D. C. Ashmead, Wilkes-Barre; John S. Desmond, Rifle, Colo.; Benjamin D. Stewart, Sitka.

Those in charge of the field offices of the mineral resources division are Charles W. Henderson, Denver; John P. Dunlop, Joplin; Victor C. Heikes, Salt Lake City; James M. Hill, San Francisco.



### British Miners' Representatives Here to Raise Funds

Visiting delegation of British Miners' Federation and Trades Union Congress, now in America to obtain aid for the families of striking miners, conferred with officials of the American Federation of Labor in Washington last week. Left to right, front row: Joseph Jones, secretary, Yorkshire Miners' Union; Ellen Wilkinson, M. P., representing the Distributive Workers' Union; William Green, president, American Federation of Labor; Frank Morrison, secretary, American Federation of Labor; Ben Tillett, Labor M. P. and head of the British Dockers' Union; Oliver Harris, treasurer, Wales Miners' Union. Back row: B. F. Davis, United Mine Workers of America; Paul McKenna, secretary, Scottish Miners' Union; James Robson, president, Durham Miners' Union (Mrs. Robson beside her husband).

Herbert Photos, Inc.



## News Items From Field and Trade



### ALABAMA

**Six Months Output High.**—Coal output in the first six months of 1926 in Alabama increased substantially that of the same period last year, according to returns compiled by H. E. Mills, assistant secretary and statistician for the Alabama Mining Institute. Production for the first six months of this year totals 10,217,000 net tons as against 10,030,000 for a like period in 1925. For the first seven months of 1926 a further gain is noted, with 11,837,000 tons for 1926 as compared with 11,641,000 for 1925.

**Nesbitt Issues Yearly Report.**—The annual report of State Mine Inspector Charles H. Nesbitt for 1925 lists 162 casualties during the year. Explosions of gas and dust were responsible for 52 deaths; falls of roof, 49; mine cars, 16; explosion of gas, 13; electrocuted, 11; miscellaneous causes, 21. Total coal production was 20,408,656 tons and the output of coke was 4,608,639 tons. Miners employed totaled 15,116; inside labor, 6,956; outside labor, 4,273, or a total of 26,345 employees. Tons per loss of life, 125,979. Number employees per life lost, 163. Of the total coke production of 4,608,639 tons, 4,513,932 tons was turned out by byproduct ovens, or 97.9 per cent of the whole. The Alabama By-Product Corporation increased its capacity by the addition of 25 ovens and the new plant of the Republic Iron & Steel Co., with 57 ovens, was placed in operation during the year.

### ARKANSAS

**To Develop Six-Foot Bed.**—Development of a 6-ft. bed of coal on a 40-acre tract of land near Midland, owned by Mrs. Ella Quinley, of Fort Smith, is to begin at once. The land has been leased to W. E. West, Hartford coal operator. It formerly was under lease to the Central Coal & Coke Co.

### COLORADO

**Canon Reliance Company Sold.**—R. E. Gross, of Boston, Mass., and his associates have purchased the entire stock of the Canon Reliance Coal Co., which operates the Wolf Park mine, Canon City. It has been stated authoritatively, that there will be no change in the personnel of the Wolf Park mine.

### IDAHO

**New Strike at Brown Bear.**—A bed of good quality coal has been struck at the Brown Bear mine, at Samuels, Stewart Campbell, state mine inspector, reported after a tour of inspection through the mine recently. The tunnel

is in 4,800 ft. and the management is now driving a raise for ventilation. This has progressed 200 ft. and when it is completed mining will be resumed again. The new beds, which at the point of discovery is 5 ft. thick, has been proved for more than a mile, Mr. Campbell said.

### ILLINOIS

**Madison Team Going to San Francisco.**—The Madison Coal Corporation operating mines No. 9 and 12, north and northwest of Carterville, will send a first aid and mine-rescue team to San Francisco to participate in the international meet in September. Belleville, Springfield and Danville teams also will take part. The Madison Coal Corporation is the only mining company that maintains such a team independent of state aid. The team is composed of W. J. Williams, safety inspector for the mines; Harry Carney, Hugh Keil, Noah Halstead, Jack Latta and Ray McCluskey. The men will be accompanied by H. T. Bannister, general safety inspector.

**Zeigler No. 1 Resumes.**—Operation has been resumed at Zeigler No. 1 mine of the Bell & Zoller Mining Co., of Chicago. The mine had been idle for five months, during which its market was accommodated from the same bed by the No. 2 mine. The reopening gave employment to 1,300 men. Two trainloads of 100 cars each, one to Chicago and the other to St. Louis, recently were shipped from the two properties.

A. Frank Druley, of the Druley & O'Brien Coal Co., Chicago retailers, who returned last week from a trip through the Pocahontas and New River coal fields of West Virginia, was impressed with the tendency on the part of the operators to prepare their coal rather than produce mine-run. He said the operators are realizing 50c. to \$1 a ton more in preparation and that the quantity of mine-run being produced has been materially lessened. Since Chicago is primarily a mine-run market it means higher prices to the dealers in that city. Mr. Druley declared.

The Chicago Coal Merchants' Association has won back its south side membership. Practically all of the dozen or more members who withdrew about a year ago and joined the Chicago Contracting Team Owners Association have returned.

### INDIANA

Switch lines connecting the Big Four railroad with a new stripping field being opened by John Williams, of Linton,

near Oakland City, are now being laid. The bed to be uncovered in the new field is said to be 11 ft. thick and of high quality.

**Reclaim Strip Land.**—Two thousand cottonwood trees have been planted and several thousand more will be set out soon in an effort to reclaim southern Indiana land devastated by strip mining operations. R. J. Plaster, agricultural agent of the Big Four railroad and the Enos Coal Mining Co. are working in co-operation on the project.

**Ebbw-Vale mine, near Sullivan, Ind.,** has resumed operations after being sealed since May because of a fire in the workings. Tonnage will be small for several weeks, as repair work is still in progress on the bottom.

**Indian Creek Mine to Open Soon.**—The Indian Creek mine, the tipple of which was destroyed by fire last spring, will be reopened early in September. This will leave only two mines idle in Knox County—Old Knox and Bruceville, which have not operated for years.

### KENTUCKY

It is reported that the American Bituminous Coal Co., Chicago, is anxious to obtain a mine in western Kentucky, and has negotiations on regarding purchase of one of the large operations. Phil Verplank, of the company, was in Louisville last week.

**Insurance Boost Halted.**—An increase of 12½ per cent in fire and tornado insurance rates, announced by the Kentucky Actuarial Bureau, as effective of noon, Aug. 2, has been halted and the old rates apply until the courts have time to act in the matter. The state courts enjoined the actuarial bureau from collection of the higher rates, which had not been sanctioned by the state department, as provided by law. In the meantime the federal courts enjoined the State Auditor from interference with the actuarial bureau, or companies, in advancing rates, but the state injunction was in effect before the federal injunction was granted.

The C. L. Ryley Coal Co. interests at Lexington, which recently increased the capitalization of the parent company, has reduced that of two of its subsidiaries. The No. 4 Superior Coal Co. capital has been reduced from \$200,000 to \$100,000, and the Trace Fork Mining Co., from \$200,000 to \$100,000.

### MISSOURI

Mine No. 2 at Camden has resumed work after having been idle all summer.





View from the Overhanging Rock at Hawks Nest, W. Va.

Traveling east through West Virginia on the Chesapeake & Ohio Ry. one notices that the peaceful Kanawha River suddenly turns into a mountain stream containing a series of rapids. From this point on the stream is appropriately named New River. The coal field of the same name lies on each side of this valley.

About \$2,000 was expended in putting the mine in good condition for work.

## OHIO

**Gas Rate Menaces Coal Demand.**—Retail coal dealers in Columbus were much interested in a recent finding of Master Commissioner Oscar W. Newman on the question of the rate for natural gas under a franchise which is pending in the city. After fighting for about a year and a half over the rate, the matter was thrown into the federal court and a master commissioner named. He held that the 40c. rate, which the city government was contending for, was not confiscatory. Coal dealers see a reduced demand for coal if that rate is finally permitted. The gas companies will carry the matter to the higher courts if not given a larger rate.

**Bailey Run Mines Stymied.**—The equipment of three mines on Bailey Run with which the Sunday Creek Coal Co. has had litigation over leases and which were recently placed in the hands of receivers has been removed and stored, blasting the hopes of several hundred miners that operations would be resumed. The companies are the Big Bailey Coal Co., the Carr Run Coal Co. and the North Hill Coal Co. The receivers being the same in each case, said they had no money with which to operate the pumps.

The North Hocking Coal Co., Columbus, has given a check for approximately \$25,000 to District Attorney J. H. Matthews to prevent being sued by the U. S. Government for corporation income and profit tax for 1918.

Arthur De Vennish, who recently was elected president of the Jay Miller Coal Co., Columbus, Ohio, following the death of Jay W. Miller, its former head, has purchased all of the stock of the company from the estate. He formerly was a stockholder in the company, which is a jobbing concern.

## PENNSYLVANIA

**Firebugs Busy.**—The Peale, Peacock & Kerr Coal Co. suffered heavy losses in a series of fires recently. On the night of Aug 5 the tippie at Emeigh Run was destroyed by flames, with a loss of \$40,000. On the following night the cleaning plant at the same place was consumed, causing a loss of \$200,000. On the following night the large barn at the summer home of Rembrandt Peale, at St. Benedict, was destroyed, with all its contents, including a number of horses, cows and a large quantity of feed and implements. This loss will run into many thousands of dollars. It was at first thought the tippie was struck by lightning, but recent developments lead the authorities to believe that all three fires were the work of incendiaries.

The Snowdon Coke Co., near Brownsville, has started using its new steel tippie for loading coal and has blown out 125 ovens, leaving 170 in blast.

Bituminous coal (revenue) transported by Reading Co. during June, 1926, totaled 1,492,361 gross tons, compared with 1,494,346 tons in the corresponding month a year ago.

**Coal Improvements Financed.**—The Hanover National Bank, New York City, has purchased \$3,000,000 ten-year 7 per cent notes of the Scranton Coal Co. and \$1,600,000 notes of the same maturity and interest rate from the Elk Hill Co., both subsidiaries of the New York, Ontario & Western Ry. Proceeds of the notes will be used to pay off debts incurred in the purchase of coal in fee, for surface lands and for improvements to the colliery property in the past two years. It is stated that the bank does not intend to offer the notes for public subscription at this time.

The Pittsburgh Terminal Coal Corporation and subsidiaries report for the six months ended June 30, 1926, profit of \$47,782 after depreciation and depletion, but before federal taxes, equivalent

to \$1.25 a share earned on \$3,805,000 6 per cent preferred stock. For the June quarter the deficit after depreciation and depletion was \$66,791. This compares with profit, of \$114,663, equal after preferred dividend requirements to 48c. a share on 120,000 shares of common stock, in the preceding quarter and \$98,646, or 32c. a share on common, in the second quarter of 1925.

## TENNESSEE

**Tennessee Products Expands.**—The properties of the Durham Coal & Iron Co., Chattanooga, have been purchased by the Tennessee Products Co., according to an announcement on Aug. 9. The consideration is said to have been \$500,000. In connection with the acquisition of these properties it was stated that the Tennessee Products Co., owner of the plant of the Chattanooga Coke & Gas Co., will double the capacity of the local unit and contemplates the erection of a blast furnace in Chattanooga. The properties consist of more than 10,000 acres of coal, iron and timber lands and mines in operation in the Sequatchie Valley and at Durham, Ga. The Tennessee Products Co. was formed early this year by a merger of the Bon Air Coal & Iron Co., the Bon Air Chemical Co., the J. J. Gray Furnace and the Chattanooga Coke & Gas Co. It is capitalized for \$30,000,000.

## UTAH

The city authorities of Ogden have awarded their 1926-7 coal contract to the A. B. C. Coal Co., which submitted the following bids: Slack, \$3.30 a ton; screened slack, \$4.05; lump, \$4.85.

## VIRGINIA

**McCoy Mines Ready Soon.**—The Great Valley Coal Co. has just completed the installation of a transformer station at its McCoy mines, and will commence active operations within the next few weeks. Electric power is being supplied by the Appalachian Power Co., whose lines run almost to the entrance of the works. Electric power will be used wherever possible. A double-track narrow gage railroad will convey the coal to the end of the tippie and load direct into the cars on the railroad siding. The company also has coal property on the Pulaski side of New river, known as the Belle Hampton mines, recently purchased, which it expects to develop in the near future.

## WASHINGTON

**Maple Falls Mine to Produce Soon.**—W. H. Pride, H. A. Taylor and M. J. Mouso have incorporated the Pride Coal Mine near Maple Falls, with a capitalization of \$300,000 for the development of the mine, which is located across the Nooksack River from Maple Falls. The mine has been so far developed that coal will be put on the market by Sept. 1. A 2,000-ft. tunnel has been driven into the side of the mountain, with a pitch sufficient to operate the

mine on a gravity system for years. The tunnel runs toward the base of the mountain, 1,600 feet of which shows a bed of coal from 3 to 5 ft.

### WEST VIRGINIA

**Sets Record for Thacker.**—The Puritan Coal Corporation, operating on the Pigeon Creek branch of the Norfolk & Western Ry., established what is claimed to be a record for the Tracker field on Aug. 2, when 2,840 tons were loaded, hauled and dumped over a single tippie. The Puritan company was organized in 1921 by the late Frank P. Harman and others and began to ship coal on Aug. 2 of that year. Officers of the Puritan Coal Corporation are E. McD. Harman, president and general manager; Arnold Gerstell, of Percy Heilner & Son, Philadelphia, vice-president in charge of sales; George W. Whitten, general superintendent; Frank M. Crum, assistant superintendent.

A credit exchange service is being conducted by the new bureau of coal statistics conducted by operators of the Kanawha and Williamson fields, with headquarters at Huntington.

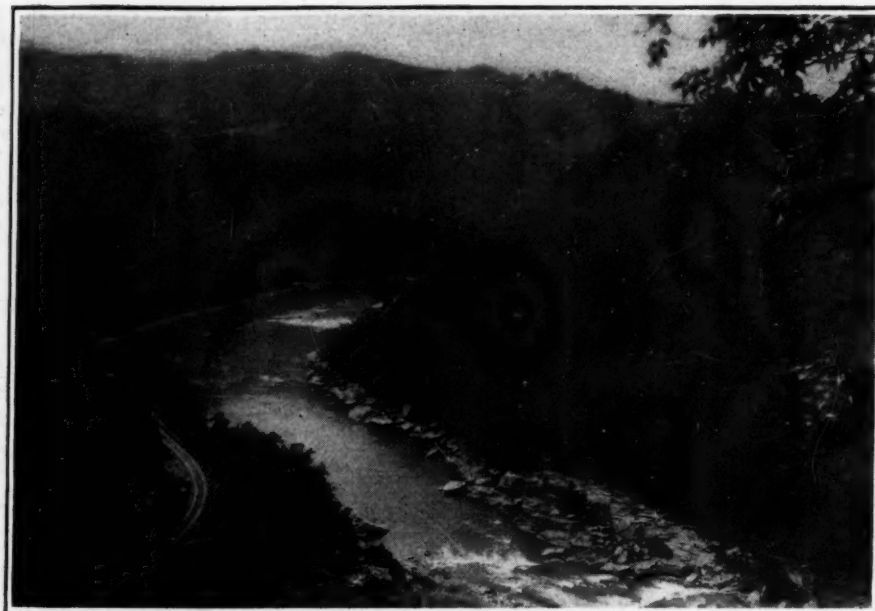
**Chicago Operator Buys Two Properties.**—The Wise Pocahontas Coal Co., of Hensley, McDowell County, and the Welch Pocahontas Land Co., of Welch, have been purchased by the Westchester Collieries Co., of Chicago, according to an announcement by John E. Stearns, of Chicago, president of the Westchester company. The deal involves 1,025 acres of Pocahontas coal land. The purchase price is said to have been \$175,000. Mr. Stearns has further announced that the property will be at once opened and funds provided for future development.

George A. Quertinment, Buckhannon coal operator, has gone into voluntary bankruptcy with assets totaling \$38,900 and liabilities of \$36,638.

**Prizes for Miners' Gardens.**—At the recent annual inspection of gardens and yards of employees of the United States Coal and Coke Co., Gary, prizes were awarded to fifty-five employees whose gardens and yards showed outstanding merit.

**Sitnek Company Changes Name.**—Hereafter the Sitnek Coal Co. will be known as the Katherine Coal Mining Co. The company operates a large mine at Lumberport, in Harrison County. Louis Sitnek is president of the concern, which has its main office in Philadelphia.

**Stop Sale of Richland Properties.**—An injunction granted by Judge W. E. Baker of the U. S. District Court for northern West Virginia prevented the sale on Aug. 4 of the properties of the Richland Coal Co. near Wellsburg, in Brooke County. The restraining order was served a few minutes before Sheriff Robert Lowe was to offer the properties for sale to pay back taxes amounting to approximately \$350,000 covering nearly ten years. The injunction also stopped a similar sale of the company's property scheduled to be held in Ohio County on Aug. 5. The Fidelity Trust Co. of Philadelphia on Aug. 4 asked the appointment of a receiver for the properties of the com-



View up the Valley or Canyon of New River in West Virginia

A new paved highway between Huntington and White Sulphur Springs skirts the rim of this gorge for several miles. The photograph was made from the overhanging rock at Hawks Nest. The river has cut a canyon 500 to 1,000 ft. deep through this section. Most of the mines of the New River field are located on the right hand side of the river and back a number of miles.

pany. The trust company claims to hold security bonds for \$1,200,000 of which only \$60,000 has been paid by the McKinley interests.

### CANADA

**Dunsmuir Buys Lantzville Mine.**—At a sheriff's sale at Nanaimo, on Aug. 5, the Nanoose-Wellington Coal Co.'s colliery at Lantzville, Vancouver Island, B. C., was sold to the Canadian Collieries (Dunsmuir), Ltd., for \$45,000. This was the only bid for the property. The property adjoins the Canadian Collieries' Wellington mines. It is understood that the unsecured liabilities of the Nanoose-Wellington Coal Co. imated \$65,000.

James McAvoy, of Toronto, has been engaged to make an examination of a group of prospective coal claims situated in territory west of Long Rapids, on the Mattagami River, in Ontario. Among the properties to be examined is a group situated at Coal Brook, where surface indications are considered highly favorable. Mr. McAvoy is acting on behalf of C. H. Ackerman, of Peterboro, Ont., who is heavily interested in mining enterprises.

**Sentiment Divided on Tariff.**—Canadian coal operators are much interested in the general Parliamentary election to be held Sept. 14. While the policy of the Liberal Party leans to a downward revision of the tariff, the principal plank in the Conservative platform is an increase in protective duties. The coal companies of Nova Scotia have been urging the necessity of higher protection as a remedy for the depression of the industry and unemployment. Premier Meighen, on a recent visit to that province, expressed himself in favor of a tariff approximating that of the United States. While this policy is strongly favored by the manufacturing interests of eastern Canada, it meets with strong

opposition in the west, where public opinion is decidedly opposed to any increase in import duties. The parties were so evenly balanced in the last House that one or two votes could turn the scale, leading to considerable unsettlement and instability.

**May Output Eclipses Average.**—Output of coal from Canadian mines in May was 1,140,630 tons, compared with 972,106 tons in April and an average of 877,308 tons for the month during the five preceding years. Imports in May totaled 1,337,206 tons, an increase of 55 per cent over the April imports, which amounted to 858,052 tons, and the five-year average for May of 1,181,518 tons. Receipts from Great Britain were 80,238 tons and from the United States 1,256,968 tons. Canada's coal exports for May were 57,512 tons, an increase of 111 per cent over the April figure of 27,165 tons. The quantity of coal made available for consumption was 2,420,324 tons, compared with 1,802,993 tons in April. Employees in coal mines in Canada in May numbered 24,413, compared with 24,206 in April.

**Union Men Haled to Court.**—At a preliminary hearing before Magistrate Matthew MacLean, at Sydney Mines, N. S., on Aug. 6, John W. MacLeod, district president of the United Mine Workers, and John Sutherland, Andrew Groves and William Wolstenholme, officers of the same organization were committed for trial at the Supreme Court on charges of intimidation. Several miners belonging to the "One Big Union" testified to threats made by the defendants on July 30 during a strike of the latter organization.

Coal output in British Columbia during the first half of 1926 was 1,062,343 gross tons and the coke output 52,335 tons, as compared with 1,173,102 tons of coal and 45,508 tons of coke in the corresponding period of 1925.



## Among the Coal Men

John Brophy, president of district No. 2 (central Pennsylvania), United Mine Workers, is a candidate for the office of president of the international union. Mr. Brophy announces that his platform calls for organization of the non-union fields and nationalization of the coal industry. "The United Mine Workers is imperiled unless it organizes the unorganized," said Brophy. "In the last few years the union has suffered disastrous losses. It has lost nearly all of the Southern territory and part of the northern field. These areas cannot be won back by a policy of local or district strikes only. The local strike is often crushed by coal from the outside, frequently from mines owned by the same operator the union is fighting. There must be a well-planned national movement that will enlist every possible support from the rest of the labor movement. With the fight for 100 per cent unionism must go the movement for public ownership of the coal industry."

W. M. Dickson, formerly purchasing agent and acting general manager of the Valier Coal Co., Valier, Ill., has been appointed district manager at Waterloo, Iowa, of the Green River Fuel Co., Inc., of Mogg, Ky.

A. S. MacNeill, general superintendent of mines for the British Empire Steel Corporation, has resigned. J. C. Nicholson, superintendent of Mines at Springhill, has been advanced to general superintendent.

John D. Moody has resigned as superintendent of Thompson No. 2 plant of the Hillman Coal & Coke Co., Pittsburgh, Pa. The vacancy was filled by the transfer of John H. Wilkes, superintendent of the Crystal plant of the same company at Gans, Pa. William J. Lyons of Uniontown, Pa., succeeds Mr. Wilkes.

James H. Frederick, formerly sales manager for four years for the Crown Coal Co., at Central City, Ky., has returned to Louisville and become wholesale and retail manager for the St. Bernard Mining Co. division of the West Kentucky Coal Co., succeeding Don D. Walker, who resigned, after buying the company's yards at Jeffersonville and New Albany, Ind. Mr. Frederick was in the Louisville coal trade for sixteen years prior to going to Central City.

George E. Ceta, head of the United States Distributing Corporation in New York and chairman of the board of the Globe Coal Co., Chicago, entertained officers and directors of the Chicago Coal Merchants Association at Lakewood Farm, his country home, farm and zoo, near Holland, Mich., Aug. 3. J. W. Petersen, Charles H. Dreiske, James B. McCahey, Albert Ronan, W. O. Hawkins, Louis F. Caldwell, George Brolin, Andrew T. Murphy, O. M. Fox, F. W. Barrett, Kyle Davis, Hugh Reid, Ben Meyer, S. Barrett Jones, Henry Hooper, A. F. Hooper, Harry Holverscheid,

Joseph F. Bigane, P. N. Seiler, Jacob Best and A. Frank Druley were his guests.

Walter B. Korff, of Evansville, Ind., manager of the Korff Coal Co., operating the Korff mine near Boonville, Ind., had a narrow escape from death on July 31 when his automobile collided with another car.

Charles H. Adams has been appointed head of the Massachusetts Commission on the Necessaries of Life in succession to Eugene C. Hultman.

## Obituary



The Late James E. Watson

In the death of James Edwin Watson, on Aug. 3, which was announced in *Coal Age* last week, Fairmont, W. Va. lost an important influence in its industrial life. He had taken a leading part in building up the coal industry of the state since 1885, when his father, the late J. O. Watson, died, and also was well known in banking circles. He was president of the Watson Co., the Fairmont Development Co., the Watson, Miller & Malone Co., the Watson Coal Co. and held an interest in the Consolidation Coal Co., the Monongahela West Penn Public Service Co., the Ohley Coal Co. and other industrial projects in the Monongahela Valley.

## Association Activities

James C. Tattersall, president of the National Retail Coal Merchants' Association, has called a meeting of the board of directors and the executive committee of the association to be held Sept. 3 at 8 p.m. at Saratoga Springs, N. Y. This meeting will be held in conjunction with the convention of the New York State Retail Coal Merchants' Association. If business warrants it a meeting will be held on Sept. 4.

## Publications Received

**Introductory Electrodynamics for Engineers**, by Edward Bennett and Harold M. Crothers. McGraw-Hill Book Co., Inc., New York City. Pp. 655, 5½x8 in.; illustrated. Price, \$4.50. A development of the electrical theory and the electrical principles which are fundamental to design, research and technical supervision in the electrical field.

**Investigations of Fuels and Fuel Testing**, under the direction of B. F. Haanel, chief of Division of Fuels and Fuel Testing, and the immediate supervision of R. E. Gilmore, superintendent of Fuel Testing Laboratories, Department of Mines, Ottawa, Canada. Pp. 81; 6½x9½ in.; tables and illustrations. The subjects covered are coking experiments on coals from the Maritime Provinces, friability tests on various fuels sold in Canada, the effects of exposing Canadian lignite to atmospheres of different humidities, examination of some lubricating oils sold in Canada, gasoline survey for 1924, report of carbonization and washing experiments on sub-bituminous coal from Coal Valley, Alberta, and distillation of oil shale.

**Coke and By-Products in 1923**, by F. G. Tryon and H. L. Bennit, U. S. Geological Survey, Washington, D. C. Reprinted from Mineral Resources of the United States, 1923, Part II, pp. 427-497.

**Financial Statistics of States, 1924**. Bureau of the Census, Department of Commerce, Washington, D. C. Pp. 140; 6x9 in.; diagrams and tables.

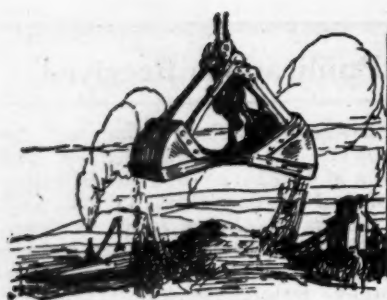
**Twenty-Seventh Annual Report of the Mining Industry of Idaho, 1925**. Pp. 270; 6x9 in.; illustrated.

**Geology and Mineral Resources of the Carbondale Quadrangle**, by J. E. Lamar. Department of Registration and Education, State Geological Survey, Urbana, Ill. Bulletin No. 48. Pp. 172; 6½x10 in.; illustrated. This report should be of particular interest and value to professional geologists and students because of the geologically unique location of the Carbondale quadrangle, crossing the southern border of the Illinois coal basin.

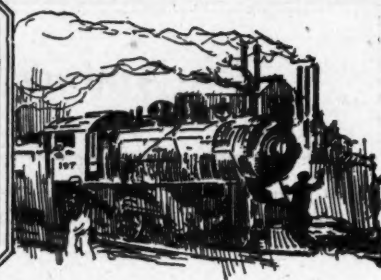
**Alternating Currents**, by Carl E. Magnusson. McGraw-Hill Book Co., Inc., New York City. Price, \$5. Third edition. Pp. 611; 6x9 in.; illustrated. A discussion of fundamental principles of alternating currents, with illustrations of their application to industrial problems.

**Mine Transportation and Market Preparation**, by Frank H. Kneeland, McGraw-Hill Book Co., Inc., New York City. Price \$3. Pp. 354; 6x9 in., illustrated. This is the third and last in a series of books on coal mining.

**Bituminous Coal Fields of Pennsylvania**, by James D. Sisler. Department of Forests and Waters, Harrisburg, Pa. Bulletin M6. Part II. Pp. 511; 6x9 in.; illustrated. Gives a brief résumé of the stratigraphy, structure and distribution of the coal beds by counties. Parts I and IV of this series have not yet been published but it is expected that they will appear shortly; part III has already been published.



## Production And the Market



### Soft-Coal Trade Continues Moderate Expansion; Low-Volatile Prices in Upward Swing

Moderate expansion marked the course of the bituminous coal markets of the United States last week. Activity was most pronounced in the southeastern section of the Appalachian Region, where mines and gateways felt the full force of lake and export buying. The influence of this activity, however, extended far beyond the confines of West Virginia and Kentucky, bringing increases in certain prices throughout a belt of territory between Boston and Chicago.

In the earlier days of the additional export buying flowing out of the British coal strike it was the high-volatile coals which were most affected. The latest price swing has touched the low-volatiles of West Virginia most sharply. On top of this, Illinois and Indiana operators have made known their determination to continue their policy of monthly increases in quotations on lump and furnace egg. Middle Western buyers are responding to this stimulus more quickly than they reacted a few weeks ago.

#### Spot Price Levels Higher

These developments are reflected in further appreciation in the levels of current prices in the open market. Coal Age Index of spot bituminous prices on Aug. 16 was 164 and the corresponding price was \$1.99. Compared with Aug. 9 this was an increase of two points and 3c. and represents the highest point reached since the beginning of the new coal year. Increases in Kentucky, West Virginia and central Pennsylvania quotations were responsible for the higher levels.

Weekly production remains comfortably over the 10,000,000-ton mark. During the first week of the month it approximated 10,140,000 net tons. Loadings the first two days of last week suggested an increase. Cumulative productive to Aug. 7 was 321,118,000 tons,

or only 16,765,000 tons less than cumulative figures to the corresponding period in 1923 and 3,442,000 tons ahead of the 1920 record.

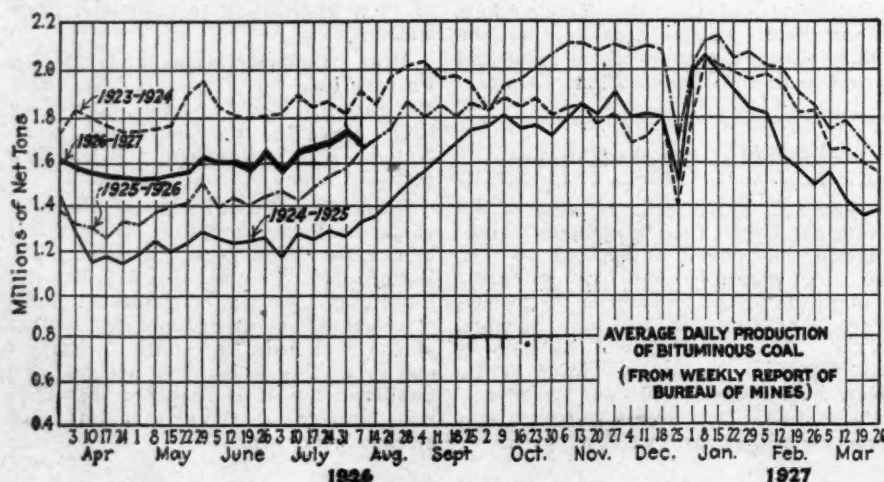
The lake cargo trade continues to offer a reliable outlet for a substantial tonnage. Dumpings during the week ended Aug. 15 totaled 935,618 tons of cargo and 57,079 tons of vessel fuel. This brings the season's total to 16,597,372 tons, as against 14,280,789 tons last year and 12,076,484 tons in 1924.

#### Better Tone in Anthracite

More optimism is in evidence in the anthracite division of the industry. Production has been brought more nearly in line with current buying inclinations. The result has been a substantial reduction in the offerings of blocks of domestic tonnage at concessions. Steam sizes still are weak, but their position has been slightly improved in the past fortnight.

Up to Aug. 7 the hard-coal mines had produced approximately 46,525,000 net tons, as against 54,519,000 tons during the corresponding period last year. On April 1, however, cumulative output this year was 10,877,000 less than in 1925. The present lag is only 7,994,000 tons. This reduction of 2,883,000 tons in the deficit hardly tells the whole story because 1926 weekly output this summer has been compelled to measure up against pre-strike accumulations in 1925.

The beehive coke industry at Connellsville jogs along from day to day with little outward change. So far the ovens have been able to preserve a nice balance between spot demand and floating supply. It is recognized, however, that the adjustment is a delicate one and that upsets are easy. July production of byproduct coke, estimated at 3,756,000 tons, has been exceeded only twice in the history of the industry.



#### Estimates of Production

(Net Tons)

##### BITUMINOUS

	1925	1926
July 24 .....	9,343,000	10,150,000
July 31 .....	9,457,000	10,540,000
Aug. 7 (b) .....	9,971,000	10,140,000
Daily average .....	1,662,000	1,690,000
Cal. yr. to date..... (c)	283,382,000	321,118,000
Daily av. to date.....	1,530,000	1,733,000

##### ANTHRACITE

July 24 .....	1,999,000	1,940,000
July 31 (b) .....	2,036,000	2,066,000
August 7.....	2,011,000	1,843,000
Cal. yr. to date..... (c)	54,519,000	46,525,000

##### BEEHIVE COKE

July 31 (a) .....	122,000	176,000
Aug. 7 (b) .....	123,000	166,000
Cal. yr. to date..... (c)	5,933,000	7,574,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.



## Eastern Coals Set Pace

Rising prices on Eastern coals are forcing buyers in the Middle West to recognize the existence of the British strike. Smokeless prepared sizes have jumped from \$3 to \$3.75, and many shippers have withdrawn from the market. There is little mine-run to be had under \$2.25. Choice high-volatile coal has advanced from \$1.40@1.50 to \$1.85.

In the Illinois and Indiana fields interest has been further quickened by the announcement that Franklin County lump and furnace will go up to \$3.25 on Sept. 1. Many buyers have hastened to place business at August circulars for southern and other Illinois and Indiana domestic sizes. This influx of orders, however, has not been heavy enough to bring about anything approaching full-time operation.

Steam sizes do not share in this livelier demand. Western Kentucky presses Illinois and Indiana, with gains in both steam and domestic, but more

on the industrial side, in the St. Louis market. Competition in Chicago territory is bitter: some fair grade western Kentucky slack has sold as low as 90c. and the top for mine-run is \$1.25.

## Want More Sized Coal Orders

Kentucky shippers complain that the demand for sized coal is not up to the mark. The Harlan district seems to have the greatest volume of orders for prepared coal on its books, but Hazard is not doing as well and conditions in the Elkhorn field are spotted. The western part of the state, too, finds movement of the larger sizes backward.

This condition is holding up quotations on slack, which commands around \$1 in the eastern districts and 80c@1 in western Kentucky. Prices on prepared sizes are stiffer, with little eastern block under \$2.50 and some as high as \$3. Lump brings \$1.75@2.50; egg, \$1.75@2.25; mine-run, \$1.40@1.75 and slack, \$1@1.25. Western Kentucky block is up to \$2; lump and egg, \$1.40@

\$1.65; nut, \$1.35@1.50; mine-run \$1.10@1.25.

All fields report a healthy call for industrial coal. There is a steady run of larger sizes to the retail yards, but consumer buying has not yet taken on the briskness which would make retailers anxious to push orders upon the producers. This seems to be the explanation of the situation in the prepared field.

## Dock Outlook More Optimistic

July shipments off the docks and August bookings have made operators at the Head of the Lakes much more optimistic over the season's outlook. Loadings last month totaled 16,223 cars, the largest for any month since February. August bookings are ahead of last month. Industries show greater willingness to sign up season contracts. Retail buying, however, lags because of credit and crop conditions.

Dock men now believe that the Northwest will take about 10,000,000

## Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern		Market Quoted	Aug. 17 1925	Aug. 2 1926	Aug. 9 1926	Aug. 16 1926†	Midwest		Market Quoted	Aug. 17 1925	Aug. 2 1926	Aug. 9 1926	Aug. 16 1926†
Smokeless lump.....	Columbus....		\$3.25	\$3.35	\$3.35	\$3.50@4.00	Franklin, Ill. lump.....	Chicago.....	\$2.85	\$2.75	\$3.00	\$3.00	
Smokeless mine run.....	Columbus....		1.90	2.15	2.15	2.00@2.30	Franklin, Ill. mine run.....	Chicago.....	2.35	2.35	2.40	2.35@2.50	
Smokeless screenings.....	Columbus....		1.35	1.30	1.40	1.35@1.50	Franklin, Ill. screenings.....	Chicago.....	1.95	1.80	1.80	1.65@2.00	
Smokeless lump.....	Chicago.....		3.25	3.10	3.35	3.50@3.75	Central, Ill. lump.....	Chicago.....	2.60	2.40	2.60	2.50@2.75	
Smokeless mine run.....	Chicago.....		2.00	1.90	2.00	2.10@2.35	Central, Ill. mine run.....	Chicago.....	2.10	2.10	2.10	2.00@2.25	
Smokeless lump.....	Cincinnati.....		3.75	3.35	3.35	3.25@3.75	Central, Ill. screenings.....	Chicago.....	1.55	1.50	1.50	1.40@1.60	
Smokeless mine run.....	Cincinnati.....		2.50	2.00	2.10	2.00@2.25	Ind. 4th Vein lump.....	Chicago.....	2.85	2.60	2.60	2.50@2.75	
Smokeless screenings.....	Cincinnati.....		1.50	1.35	1.35	1.25@1.50	Ind. 4th Vein mine run.....	Chicago.....	2.35	2.15	2.25	2.15@2.50	
*Smokeless mine run.....	Boston.....		4.30	4.65	5.05	4.90@5.10	Ind. 4th Vein screenings.....	Chicago.....	1.60	1.75	1.75	1.65@1.85	
Clearfield mine run.....	Boston.....		1.75	1.75	1.75	1.70@2.00	Ind. 5th Vein lump.....	Chicago.....	2.35	2.35	2.35	2.25@2.50	
Cambridge mine run.....	Boston.....		1.95	1.85	2.05	1.90@2.25	Ind. 5th Vein mine run.....	Chicago.....	1.95	1.95	2.00	1.90@2.10	
Somerset mine run.....	Boston.....		1.85	2.05	1.85	1.80@2.10	Ind. 5th Vein screenings.....	Chicago.....	1.45	1.50	1.50	1.40@1.60	
Pool 1 (Navy Standard).....	New York.....		2.55	2.55	2.60	2.50@3.75	Mt. Olive lump.....	St. Louis.....	2.50	2.35	2.35	2.25@2.50	
Pool 1 (Navy Standard).....	Philadelphia.....		2.60	2.65	2.65	2.50@2.80	Mt. Olive mine run.....	St. Louis.....	2.00	2.15	2.15	2.15	
Pool 1 (Navy Standard).....	Baltimore.....		1.85	2.15	2.15	2.15@2.20	Mt. Olive screenings.....	St. Louis.....	1.75	1.55	1.55	1.50@1.60	
Pool 9 (Super. Low Vol.).....	New York.....		1.95	2.05	2.05	1.90@2.25	Standard lump.....	St. Louis.....	2.25	2.25	2.25	2.25	
Pool 9 (Super. Low Vol.).....	Philadelphia.....		2.00	2.10	2.10	2.00@2.25	Standard mine run.....	St. Louis.....	1.80	1.80	1.80	1.75@1.85	
Pool 9 (Super. Low Vol.).....	Baltimore.....		1.75	1.85	1.85	1.80@1.90	Standard screenings.....	St. Louis.....	1.30	1.35	1.35	1.25@1.50	
Pool 10 (H.Gr.Low Vol.).....	New York.....		1.75	1.85	1.85	1.75@2.00	West Ky. block.....	Louisville.....	1.85	1.60	1.65	1.60@1.85	
Pool 10 (H.Gr.Low Vol.).....	Philadelphia.....		1.70	1.85	1.85	1.75@2.00	West Ky. mine run.....	Louisville.....	1.30	1.20	1.20	1.10@1.35	
Pool 10 (H.Gr.Low Vol.).....	Baltimore.....		1.60	1.75	1.75	1.75@1.80	West Ky. screenings.....	Louisville.....	.75	.85	.90	.80@1.00	
Pool 11 (Low Vol.).....	New York.....		1.60	1.70	1.70	1.60@1.85	West Ky. block.....	Chicago.....	2.00	1.75	1.75	1.65@1.85	
Pool 11 (Low Vol.).....	Philadelphia.....		1.55	1.55	1.55	1.45@1.70	West Ky. mine run.....	Chicago.....	1.35	1.15	1.15	1.00@1.35	
Pool 11 (Low Vol.).....	Baltimore.....		1.40	1.65	1.70	1.65@1.70							
High-Volatile, Eastern							South and Southwest						
Pool 54-64 (Gas and St.).....	New York.....		1.55	1.40	1.40	1.35@1.50	Big Seam lump.....	Birmingham.....	2.00	2.60	2.25	2.00@2.50	
Pool 54-64 (Gas and St.).....	Philadelphia.....		1.50	1.45	1.45	1.40@1.55	Big Seam mine run.....	Birmingham.....	1.75	1.85	1.85	1.75@2.00	
Pool 54-64 (Gas and St.).....	Baltimore.....		1.35	1.45	1.45	1.40@1.50	Big Seam (washed).....	Birmingham.....	1.85	2.00	2.00	1.75@2.25	
Pittsburgh sc'd gas.....	Pittsburgh.....		2.45	2.25	2.25	2.20@2.30	S. E. Ky. block.....	Chicago.....	2.55	2.40	2.40	2.35@2.75	
Pittsburgh gas mine run.....	Pittsburgh.....		2.15	2.00	2.00	1.90@2.10	S. E. Ky. mine run.....	Chicago.....	1.70	1.60	1.65	1.60@1.75	
Pittsburgh mine run (St.).....	Pittsburgh.....		1.95	1.75	1.75	1.60@1.90	S. E. Ky. block.....	Louisville.....	2.80	2.35	2.50	2.25@2.75	
Pittsburgh slack (Gas).....	Pittsburgh.....		1.50	1.25	1.25	1.20@1.30	S. E. Ky. mine run.....	Louisville.....	1.55	1.55	1.55	1.40@1.75	
Kanawha lump.....	Columbus.....		2.00	2.05	2.25	2.00@2.50	S. E. Ky. screenings.....	Louisville.....	1.15	1.00	1.10	1.00@1.25	
Kanawha mine run.....	Columbus.....		1.40	1.60	1.60	1.50@1.75	S. E. Ky. block.....	Cincinnati.....	2.55	2.40	2.35	2.25@2.50	
Kanawha screenings.....	Columbus.....		1.30	1.10	1.10	1.10@1.25	S. E. Ky. mine run.....	Cincinnati.....	1.55	1.65	1.60	1.50@1.90	
W. Va. lump.....	Cincinnati.....		2.35	2.35	2.35	2.25@2.75	S. E. Ky. screenings.....	Cincinnati.....	1.15	1.10	1.00	1.00@1.25	
W. Va. gas mine run.....	Cincinnati.....		1.55	1.70	1.65	1.75@1.85	Kansas lump.....	Kansas City.....	4.25	4.25	4.25	4.25	
W. Va. steam mine run.....	Cincinnati.....		1.45	1.55	1.50	1.50@1.75	Kansas mine run.....	Kansas City.....	3.10	3.00	3.00	3.00	
W. Va. screenings.....	Cincinnati.....		1.15	1.10	1.10	1.00@1.25	Kansas screenings.....	Kansas City.....	2.50	2.50	2.50	2.50	
Hooking lump.....	Columbus.....		2.35	2.35	2.35	2.25@2.50							
Hooking mine run.....	Columbus.....		1.55	1.55	1.55	1.40@1.75							
Hooking screenings.....	Columbus.....		1.40	1.10	1.10	1.15@1.25							
Pitta. No. 8 lump.....	Cleveland.....		2.25	2.15	2.15	1.85@2.50							
Pitta. No. 8 mine run.....	Cleveland.....		1.85	1.70	1.75	1.70@1.80							
Pitta. No. 8 screenings.....	Cleveland.....		1.40	1.25	1.35	1.25@1.35							

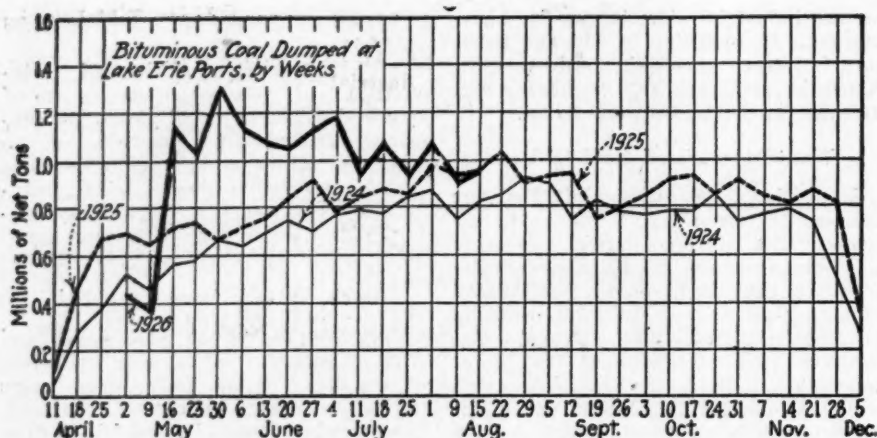
\* Gross tons, f.o.b. vessel, Hampton Roads  
† Advances over previous week shown in heavy type, declines in italics

\* Gross tons, f.o.b. vessel, Hampton Roads  
† Advances over previous week shown in heavy type, declines in italics

## Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

		Market Quoted	Freight Rates	August 17, 1925		August 9, 1926		August 16, 1926†	
				Independent	Company	Independent	Company	Independent	Company
Broken.....	New York.....	\$2.34			\$8.20@8.90		\$8.50@9.25		\$8.50@9.25
Broken.....	Philadelphia.....	2.39			8.25@8.90	\$9.25	8.50@9.15	\$9.25	8.50@9.15
Egg.....	New York.....	2.34		\$9.50@10.15	8.65@8.90	8.60@9.00	8.75@9.25	8.60@9.00	8.75@9.25
Egg.....	Philadelphia.....	2.39		8.90@9.70	8.70@8.85	9.00@9.75	9.00@9.15	9.00@9.75	9.00@9.15
Egg.....	Chicago.....	5.06		8.17@8.60	8.03@8.28	8.14	8.13	8.14	8.13
Stove.....	New York.....	2.34		10.00@10.60	9.15@9.40	9.00@9.50	9.25@9.50	9.00@9.50	9.25@9.50
Stove.....	Philadelphia.....	2.39		9.15@10.75	9.15@9.40	9.15@10.20	9.35@9.50	9.15@10.20	9.35@9.50
Stove.....	Chicago.....	5.06		8.71@8.90	8.48@8.80	8.59	8.33@8.58	8.59	8.33@8.58
Chestnut.....	New York.....	2.34		9.50@10.00	8.65@8.90	8.35@8.75	8.75@9.15	8.35@8.85	8.75@9.15
Chestnut.....	Philadelphia.....	2.39		9.15@10.15	8.85@8.90	8.50@9.75	9.00@9.15	8.50@9.75	9.00@9.15
Chestnut.....	Chicago.....	5.06		8.35@8.60	9.28@8.50	8.39	8.33@8.53	8.39	8.33@8.53
Pea.....	New York.....	2.22		5.00@6.00	5.00@5.55	6.00@6.50	6.00@6.50	6.00@6.50	6.00@6.50
Pea.....	Philadelphia.....	2.14		5.50@5.90	5.00@5.50	6.00@6.75	6.00@6.50	6.00@6.75	6.00@6.50
Pea.....	Chicago.....	4.79		5.18@5.36	5.05@5.36	6.03	6.10	6.03	6.10
Buckwheat No. 1.....	New York.....	2.22		2.25@2.60	2.50	1.65@2.25	3.00@3.50	1.75@2.25	3.00@3.50
Buckwheat No. 1.....	Philadelphia.....	2.14		2.50@2.75	2.50	1.85@2.50	2.25@2.75	1.85@2.50	2.25@2.75
Rice.....	New York.....	2.22		2.10@2.30	2.00	1.40@1.85	2.00@2.25	1.40@1.85	2.00@2.25
Rice.....	Philadelphia.....	2.14		2.00@2.25	2.00	1.30@2.00	1.75@2.25	1.30@2.00	1.75@2.25
Barley.....	New York.....	2.22		1.50@1.75	1.50@1.60	1.25@1.50	1.75@2.25	1.25@1.50	1.75@2.25
Barley.....	Philadelphia.....	2.14		1.50@1.75	1.50	1.25@1.75	1.50@1.75	1.25@1.75	1.50@1.75
Birdseye.....	New York.....	2.22		1.60@1.90		1.25@1.50	2.00	1.25@1.50	2.00

\* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type, declines in italics.



tons of bituminous coal and 900,000 tons of anthracite from the docks. Anthracite factors concede some desorption to low-volatile, but declare this will be offset by gains in other directions. Current prices are firm. In the bituminous division prepared splint and Hocking has jumped 25c. Stocks on hand approximate 4,000,000 tons.

Both the docks and the retail dealers at Milwaukee report a satisfactory demand for all kinds of fuel, but smokeless has the edge. Recent increases in mine prices on low-volatile coal will be reflected in advances of 25@50c. in retail prices to the consumer. Other prices are unchanged.

#### "No Bills" Pile Up in Southwest

The Southwestern coal market continued slow last week, with reports of accumulations of "no bills" at mines in Arkansas and Oklahoma as well as Kansas. Arkansas operators have succeeded in catching up with the July rush of orders, and production is now running ahead of demand in all fields. "No bills," however, have not yet reached any serious proportions.

Prices are all unchanged from the first of the month.

Orders for domestic sizes of Colorado coals receded slightly with the beginning of the month, but in the last ten days business again has improved. Shippers of Crested Butte anthracite report bookings to carry them into November production. Prices on all grades continue at the Aug. 1 basis. The mines are operating approximately 55 per cent.

In Utah the demand for coal for storage is heavier than normal for the season, due to lower prices, but business is not as good as it ought to be. The slack situation is comparatively easy. Mines are working around two and one-half days a week. Metal mines, smelters and the railroads lead the industrial demand. Prices remain steady. Lump is not likely to advance till production is on a scale that will insure an adequate supply of slack for industrial consumers. The outlook for the sugar industry is not so good, as production will be much below last year's.

#### Price Bulge at Cincinnati Unchecked

The stiffening of values in the Cincinnati market continues, with smokeless taking the lead under heavier buying by both Eastern and Western consumers. Some low-volatile shippers are

asking \$4 for egg and lump and little can be bought under \$3.50. Slack is unchanged; mine-run is in keen demand. Indeed, the drift to mine-run is responsible in a large measure for the rising quotations on prepared sizes.

Domestic demand for high volatile is quickening in the West. Nominally Kentucky prepared is held at \$2.25@ \$2.50, but there is little coal available at the lower figure. Splint egg is up to \$2.25 and fancy coals command \$2.75@ \$3. Lake business controls the price on 2-in. lump from West Virginia and Kentucky, with indications

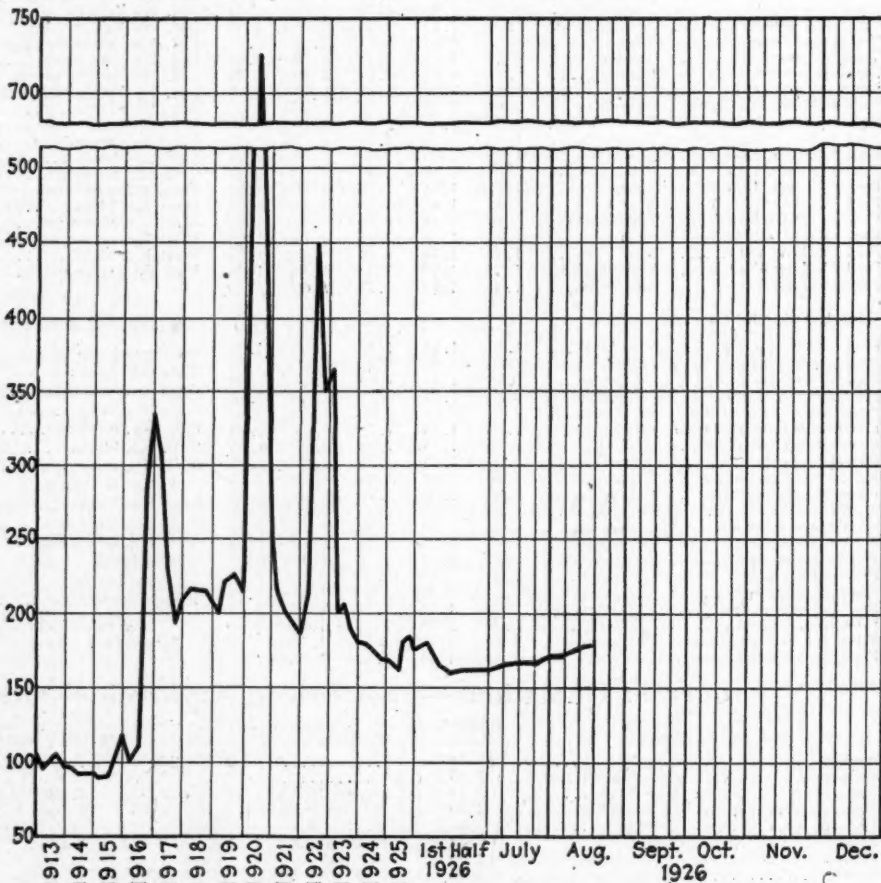
of an early advance over current levels.

Heavier eastbound movement is shown in the car interchange reports for the week ended last Saturday. Coal loads moving through the Cincinnati gateway totaled 13,378 cars, a decrease of 1,202 cars when compared with the preceding week. Lake coal loads en route to Toledo and Sandusky were 3,782 cars—an increase of 202. During the week 12,382 empties moved en route to the mines.

#### Domestic Buying Expands

Demand for all grades of domestic coal broadened at Columbus last week, but West Virginia coals showed the greatest strength. Retail distributors are placing orders to replenish stocks, drawn upon by household consumers. The steam side of the market is less attractive. Screenings, it is true, are up 10c., but large industrial plants still appear indifferent to storing coal.

Cleveland also reports a better tone to the market although slack is about a nickel weaker. Locally the demand for prepared smokeless is strong; spot lump is scarce at \$4 and contract orders are being booked at \$3.50. During the week ended Aug. 7 the No. 8 field produced 202,000 tons, or approximately 29 per cent of capacity. This was an increase of 14,000 tons over the preceding week but 45,000 tons less than a year ago.

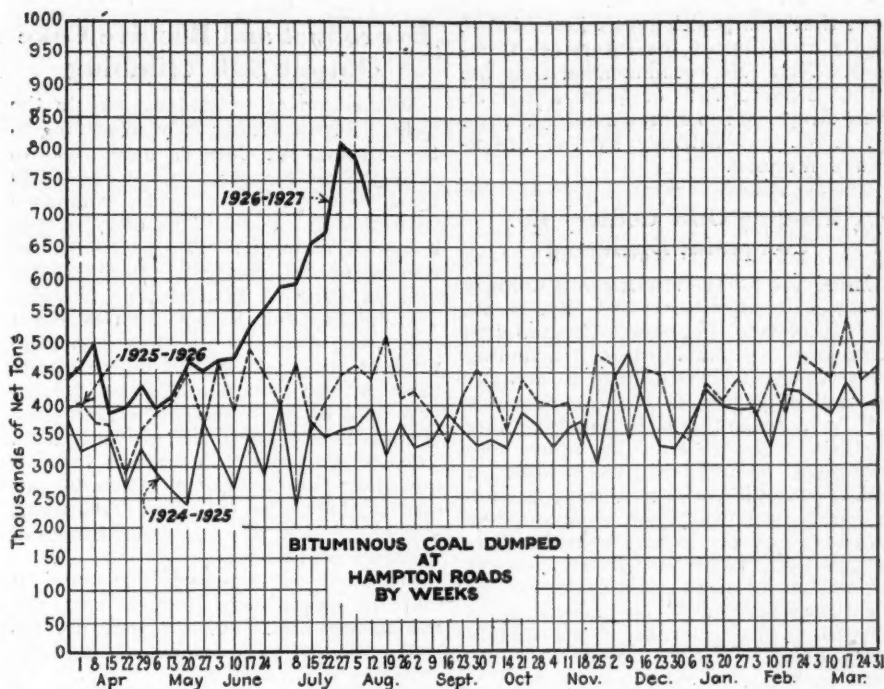


Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1926	1925	1924
Index	Aug. 16 164	Aug. 2 159	July 26 159
Weighted average price	\$1.99	\$1.96	\$1.92
	Aug. 17 167	Aug. 17 165	Aug. 18 165
	\$2.02	\$2.00	\$2.00

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.





Cautious and lighter buying for export is noticeable in the Pittsburgh district gas-coal market. At the present time \$2 is the top for mine-run and \$2.25 for three-quarter coal, as compared with \$2.10 and \$2.30 or \$2.35 a few weeks ago. There is, however, still a fair volume of tonnage to be shipped on old orders. In the domestic trade the general situation is unchanged. Industrial consumption is large, but there is little stocking. Retail buying has not hit its stride.

#### Non-Union Output Controls

Non-union output dominates the commercial market in the district, although open-shop operations in and around Pittsburgh do not seem to be making much headway at the present time. Group 2 mines in the Bessemer district are operating 60 to 70 per cent, but sales realizations cause complaint. Group 1 mines, still officially union, are practically idle.

Demand is holding fairly steady in central Pennsylvania. In the week ended Aug. 7 13,953 carloads was produced, which is a substantial increase over the first week of the preceding month. Output in the first seven months of 1926 was 461,834 carloads. During the same period in 1925 the loadings were 389,075 cars. Pool 1 is priced at \$2.50@2.75; pool 71, \$2.25@2.35; pool 9, \$2@2.20; pool 10, \$1.75@1.90; pools 11 and 18, \$1.65@1.70.

Business is quiet at Buffalo. High-volatile quotations show no marked variation from those persisting for several weeks past. Generally speaking, that also is true of the low-volatile prices. Pocahontas lump, however, now commands \$3.25@3.50, and Somerset County lump, \$2.75@3. The market at Toronto is quiet, but the undertone is improving.

#### New England Market Steady

The New England market remains reasonably firm, although there has not been the buoyancy which some expected. A temporary check has been effected in advancing quotations; this has been

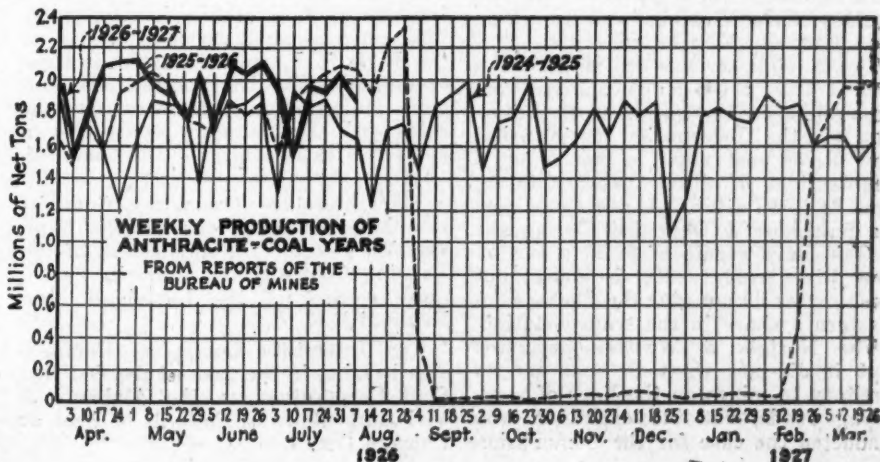
made possible by the discriminating character of export buying. Sales of Pocahontas and New River mine-run are being made at approximately \$5 per gross ton f.o.b. vessels at Hampton Roads. Some No. 2 coal can be had at \$4.75, but better grades of smokeless command \$4.90@5.10.

Inland prices also are higher, with most offers on cars at Boston around \$6. Providence interests are holding out for \$6.25@6.40. Only scattering orders are to be had as buyers fully realize that the British strike is responsible for the present firmness in quotations. The all-rail market on Pennsylvania coals continues dull.

The New York soft-coal market is brighter. Inquiries were more plentiful last week, but new orders were scarce. Coal moved easier, however, convincing observers that more fuel was going into industrial storage. Export factors are not dismayed by reports of an early settlement in Great Britain, as they foresee a heavy September business regardless of the outcome of the peace parleys on the other side of the waters.

#### Quiet Increase at Philadelphia

A gradual increase in sales is admitted by Philadelphia shippers, but the complaint persists that prices are



unsatisfactory. A quiet broadening of the market for storage coal is evident. Efforts of bituminous producers to stir up interest in their product for domestic consumption meet with little success. Heavy shipments of screened coal to the West and for export, however, have forced producers to scurry around for slack orders.

Export business overshadows all other developments in the Baltimore market. During the first ten days of the month 30 ships cleared with probably 180,000 tons of cargo fuel, and many more vessels are waiting their turn at the piers. An overflow of bunker demand from general carriers has helped many shippers who could not do business with the British buying committee. Domestic trade is featureless.

Birmingham district business was slightly improved last week. Spot bookings increased and there were indications that storage movement would soon take on more life. Choice grades are placed with little difficulty and there are no troublesome surpluses. The medium and lower grades, particularly coals entering the domestic market, still drag. Coke demand is active. Spot foundry coke is \$6; egg, \$4.50@5 and nut, \$3.50@4.

#### More Life to Anthracite

The anthracite market at New York shows signs of greater activity. Domestic coals are moving easier and retail dealers are getting ready for a busy fall and winter. Independent operators are holding prices more firmly. Stove still leads in demand, with egg a good second and nut a poor third. Pea is somewhat easier. The steam sizes, if anything, are less draggy.

Superficially there has been no great change in the Philadelphia hard-coal market. Underlying conditions, however, appear to be more favorable. There are fewer offers of coal at concessions and even a few cases in which the shippers are demanding more for pea and stove. But there still are many retailers either carrying heavy stocks in their yards or a large number of slow accounts on their books—the result of high-pressure efforts to move coal.

The steam side of the trade continues unsatisfactory, especially in buckwheat and rice. Even here, however, there are occasional signs of improvement. At Baltimore the retail trade is moving along on April schedules. Canadian demand promises to increase with

### Car Loadings and Supply

	Cars Loaded	
	All Cars	Coal Cars
Week ended Aug. 7, 1926.....	1,102,590	192,609
Week ended Aug. 8, 1925.....	1,051,611	189,761

	Surplus Cars		Car Shortages	
	All Cars	Coal Cars	All Cars	Coal Cars
July 31, 1926.....	199,073	56,785	.....	.....
July 23, 1926.....	218,627	64,922	.....	.....
July 31, 1925.....	263,876	80,661	.....	.....

the approach of autumn, but no apprehension as to the adequacy of supplies is expressed in the Toronto market.

#### Fair Movement via Lakes

Lake shipments of anthracite from Buffalo during the week ended Aug. 12, were 93,500 tons, compared with 105,800 tons the week preceding. Duluth-Superior took 57,700 tons; Milwaukee, 18,500; Chicago, 15,200; Marquette, 5,500, and Hancock, 2,600 tons.

The Connellsville spot furnace coke market is steady but decidedly dull. One contract for 15,000 tons per month recently was closed, but in general there is no contract inquiry. Spot demand for foundry coke is moderate, with prices unchanged. The call for coke for heating purposes has been below expectations.

During the week ended Aug. 7 the Connellsville and Lower Connellsville region produced 121,940 tons, according to the Connellsville *Courier*. Furnace-oven output totaled 61,650 tons, a decrease of 450 tons when compared with the figures for the preceding week. Merchant-oven output, 60,290 tons, showed an increase of 3,400 tons.

### Traffic News

#### Urges Lower Joint Rates on Chesapeake Western

Lower rates on bituminous coal to Harrisonburg, Va., and other points on the Chesapeake Western Ry. should be ordered by the Interstate Commerce Commission, it has been recommended by J. C. Haraman, an examiner for the Commission.

A formal complaint against the Norfolk & Western Ry. was filed by the Chesapeake Western, a forty-mile road in Rockingham and Augusta counties, Virginia, because the N. & W. refused to publish joint rates and routings on coal to Chesapeake Western points from mines in the New River district on lines of the Virginian and Kanawha, Glen Jean and Eastern railroads.

The Norfolk & Western maintains a rate of \$2.90 a ton on Pocahontas coal from mines on its own line to Harrisonburg via the Chesapeake Western, but New River coal must be moved on a combination of local rates totaling from \$4 to \$5 a ton. At the same time the Baltimore & Ohio and Chesapeake & Ohio have a rate of \$2.90 a ton on New River coal to Harrisonburg, but these routes do not give the Chesapeake Western a share in the transportation.

The Norfolk & Western protested that it did not want to open up its territory to mines on the lines of competing roads, but the examiner who conducted the case for the Commission

held that this position was inconsistent and a violation of the Interstate Commerce Act. He recommended that the I.C.C. order a rate of \$2.90 a ton on New River coal to Harrisonburg via the N. & W. and delivery by the Chesapeake Western.

#### Winding Gulf Colliery Co. Complaint Dismissed

In Docket 14931, Winding Gulf Colliery Co. vs. Chesapeake & Ohio Ry. et al., the Interstate Commerce Commission dismisses the complaint with a finding that the defendant's failure to arrange for the extension of the same service and facilities to the complainant's mines as they accord certain other mines does not result in unjust discrimination, or undue prejudice, and that the combination rates on coal from complainant's mines (which are located near Pemberton, W. Va., in the New River District) to eastern interstate destinations on or via the other line are not unreasonable, unjustly discriminatory or unduly prejudicial.

#### Southwest Rates to Lincoln On Parity with Omaha

After reargument in Docket 14289, Lincoln Chamber of Commerce et al. vs. Arkansas Central R.R. et al. the Interstate Commerce Commission finds that the rates on coal from mines in Kansas, Missouri, Arkansas and Oklahoma to Lincoln and Havelock, Neb., will for the future be unreasonable to the extent that they exceed contemporaneous rates to Omaha. The Commission affirms its former findings in Docket 14661 and No. 14289, and issues fourth section order No. 9345 to provide for the establishment of the new rates by the Rock Island Ry., an interested party to the case.

#### Assigned-Car Decision Against Denver & Salt Lake Line

The Interstate Commerce Commission has rendered a decision in Docket 14968, Victor-American Fuel Co. vs. Denver & Salt Lake R.R. et al. In substance it is another assigned-car decision. The Commission finds that the railroad's rules, regulations and practices with respect to distribution of cars to coal mines is unlawful, unreasonable and unduly prejudicial. Its practice of not counting against the mine's distributive share cars placed for railway fuel loading is condemned. The general car-distribution rules of the D. & S. L. were involved and the Commission has given the railroad company an opportunity to work out the rules with the operators on its line in a manner satisfactory to all concerned.

The Interstate Commerce Commission has reassigned for hearing Sept. 8 at Washington the application of the Reading Company for authority to acquire control of the Lehigh & New England R.R.

The Interstate Commerce Commission hearing in the case of the Old Ben Coal Corporation vs. the Alabama & Vicksburg Railway Co. will be held at Chicago Oct. 4.

### Byproduct and Beehive Coke Output Still Climbing

Production of byproduct coke in the United States during July, according to the Bureau of Mines, amounted to 3,756,000 net tons, an increase of 146,000 tons, or 4 per cent, when compared with that for June. The daily output however, owing to the longer month, increased only 0.7 per cent, from 120,334 tons in June to 121,156 tons in July. The July production has been exceeded only twice before in the history of byproduct coke making. Of the 81 plants listed by the Bureau of Mines, 2 have now been dismantled and 4 others have produced no coke since 1920 and 1921. The 75 others were all active in July and their production was about 90 per cent of their total capacity. One plant which had been idle for several months resumed operations.

Beehive coke production showed a material gain during July, the total for the month being 963,000 tons, an increase of 18.7 per cent when compared with the earlier month.

Output of all coke amounted to 4,719,000 tons, the byproduct plants contributing 80 per cent and the beehive plants 20 per cent.

#### Output of Byproduct and Beehive Coke in the United States by Months (a)

(In Thousands of Net Tons)

	Byproduct Coke	Beehive Coke	Total
1923 monthly average	3,133	1,615	4,748
1924 monthly average	2,833	806	3,639
1925 monthly average	3,332	893	4,225
April, 1926.....	3,602	981	4,583
May, 1926.....	3,722	884	4,606
June, 1926.....	3,610	811	4,421
July, 1926.....	3,756	963	4,719

(a) Excludes screenings and breeze.

The total quantity of coal consumed in coke plants in July was about 6,915,000 tons—5,396,000 tons at byproduct plants and 1,519,000 tons at beehive plants.

#### Estimated Monthly Consumption of Coal in the Manufacture of Coke

(In Thousands of Net Tons)

	Consumed In Byproduct Ovens	Consumed In Beehive Ovens	Total Coal Consumed
1923 monthly average	4,523	2,507	7,030
1924 monthly average	4,060	1,272	5,332
1925 monthly average	4,787	1,371	6,158
April, 1926.....	5,176	1,547	6,723
May, 1926.....	5,348	1,394	6,742
June, 1926.....	5,186	1,279	6,465
July, 1926.....	5,396	1,519	6,915

Of the total production of byproduct coke in July, 3,127,000 tons, or 83.3 per cent, was made in plants associated with iron furnaces, and 629,000 tons, or 16.7 per cent, was made at merchant or other plants.

The Secretary of the Interior has ruled that on land in coal withdrawals and valuable for coal, oil shale claims filed under the mining laws are invalid. An act of Congress in 1910 made it possible to file on land in coal withdrawals by waiving all rights to the coal. The Secretary holds in the present ruling that this act only allows filings for agricultural and stock-grazing purposes and does not allow mineral filings.



## Foreign Market And Export News

### Demand for Foreign Coal Wanes in British Market; Expect Strike to End Soon

London, Aug. 5.—There is a strong feeling that the British coal stoppage will end suddenly, and this feeling has caused a slackening in demand for foreign coal. At the moment British coal depots are keeping only enough to meet current requirements, intending to replenish as soon as possible with British coal.

Last week 61,500 tons of foreign coal arrived at South Wales ports; of this, 38,750 came from the United States, 15,200 tons from Germany and 7,500 tons from Belgium.

Replying to a question in the House of Commons as to what losses had been sustained by industry throughout the country as a result of the coal stoppage, A. M. Samuel (Overseas Trade Department) said it was not possible at present to give any precise estimate, but the loss in production through unemployment was estimated at not less than £100,000,000. If the unavoidable reduction in the activity of those recorded as employed was taken into account the total loss in the period since April 30 might reach £150,000,000 or even a larger sum.

### French Coal Consumers Panicky As Deliveries Drag

Paris, July 28.—Prices in the French coal market continue to advance steadily with the constantly mounting demand. Even private consumers are panicky, as merchants refuse to deliver more than a limited tonnage. It is in the center of France that the situation is more keenly felt. Industries in that region have not received any coal for several weeks and small merchants are no better treated by the operators of the Nord and Pas-de-Calais area. Appeals have been made to the public authorities in order to obtain supplies for harvesting the crops.

French and Belgian mine owners are discussing new prices on sized coals, to go into effect Aug. 1. If the expected increase in wages takes place a fortnight later, a further advance on coals of all grades will be made. The rising cost of binder material has caused the price of ovoids to mount also.

It is likely that the instability of the franc will cause mine owners to require invoices to be paid as near as possible to gold record or on delivery.

During the first seventeen days of July the O. H. S. received indemnity deliveries from the Ruhr of 120,300 tons of coal, 136,900 tons of coke and 22,800 of lignite briquets. The O.R.C.A. received 205,850 tons of coke during the first 27 days of the month.

Producers of Belgian sized coals in the Charleroi and Liège fields have

agreed upon new prices to French dealers beginning Aug. 1. On semi-bituminous the advances vary from 42 to 72 fr., quarter-bituminous, 50 to 72 fr.; lean, 50 to 120 fr.; crushed, 65 to 100 fr.

### German Coal Trade Climbing During British Strike

Berlin, July 15.—German coal exports have increased considerably of late and it is expected that the so-called summer prices will be withdrawn in the near future, though as a rule they remain in force until the end of fall. In certain grades, like anthracite, gas coal and gas flame coal, a shortage can already be noticed. The Ruhr syndicate is refusing all orders from domestic buyers for delivery in July and even August. Shipments from German ports have assumed such unusual proportions that the existing shipping facilities are insufficient to cope with the volume of business.

The coal syndicates have closed a number of long-term contracts which assure the disposal of surplus production until next spring and as the demand is becoming more and more pressing it is quite easy for the German syndicates to impose their conditions on foreign buyers. Some coal dealers are trying to take advantage of this situation by selling the coal they have in stock for export in competition with the syndicates. Efforts have been made to stop such practice, but a sufficient quantity finds its way across the frontiers to cause serious apprehension regarding domestic supply.

If reports are correct it is likely that a change in the coal tribute to France and Belgium will take place. The inflation of the French currency has raised German coal and coke prices so high over those prevailing in France that the French reparation administration is finding coal and coke very unprofitable. Operators in the Ruhr district are confident that at least shipments on reparation account will be reduced considerably, which would gradually lead to free coal trade between the respective countries.

### Export Clearances, Week Ended Aug. 12 FOR HAMPTON ROADS

For United Kingdom:		Tons
Br. Str. Quebec City.....	7,271	
Br. Str. Bournemouth.....	6,686	
Br. Str. Gambia River.....	7,273	
It. Str. Valsesia.....	7,690	
Br. Str. Inventor.....	8,499	
Br. Str. Dronit.....	4,772	
Du. Str. Boschdijk.....	8,522	
Br. Str. Wheatmore.....	7,654	
Belg. Str. Belgier.....	7,128	
Br. Str. Mekta.....	5,999	
It. Str. Calaba.....	7,823	
Du. Str. Aalsum.....	8,309	
Br. Str. Jevington Court.....	7,365	
For Wales:		Tons
It. Str. Campania.....	7,175	
It. Str. Ello.....	6,606	
For Ireland:		Tons
Nor. Str. Wascana.....	7,277	

For Scotland:	
It. Str. Ansaldo Savola Secundo.....	6,587
For Italy:	
It. Str. Ida, for Trieste.....	4,012
It. Str. Maria Adele, for Genoa.....	9,590
For Bermuda:	
Am. Str. Purnell T. White.....	1,108
For West Africa:	
It. Str. Della 3rd, for Dakar.....	8,134
For Canary Islands:	
Nor. Str. Havo.....	7,169
For Jamaica:	
Sw. Str. Greta, for Kingston.....	2,594
Br. Str. Macibi, for Kingston.....	3,313
For Barbados:	
Br. Str. Stephen.....	2,536
For Gibraltar:	
Br. Str. Elswick Grange.....	5,527
For Argentine:	
Br. Str. Canadian Transport, for Buenos Aires.....	5,607
Br. Str. Segura, for Bahia Blanca.....	6,579
Br. Str. Boyne, for Buenos Aires.....	5,778
Grk. Str. Akropolis, for Buenos Aires.....	4,905
For Brazil:	
Br. Str. Pencisely, for Pernambuco.....	5,460
Br. Str. Headcliffe, for Pernambuco.....	4,934
Fr. Str. Platon, for Rio de Janeiro.....	6,373
Fr. Str. Leopold L. D., for Rio de Janeiro.....	5,870
Br. Str. Winborne, for Rio de Janeiro.....	7,893

### FROM BALTIMORE

For England:	Tons
Dutch Str. Zuarde Zee.....	5,439
Br. Str. Holtby.....	5,568
For Ireland:	
Br. Str. Glenardle, for Queenstown for orders to England.....	6,766
Br. Str. Diadem, for Queenstown for orders to England.....	7,326
Br. Str. Alness, for Queenstown for orders to England.....	6,014
Br. Str. Levenpool, for Queenstown for orders to England.....	7,940
Gr. Str. Ithaki, for Queenstown for orders to England.....	6,328
For Italy:	
Ital. Str. Emmanuele Accame.....	11,387
For Argentina:	
Br. Str. Wymburn for Buenos Aires.....	5,016
For Portugal:	
Port. Str. Gaza.....	231
For Egypt:	
Br. Str. Hounslow, for Alexandria.....	4,951
Br. Str. Beckenham, for Alexandria.....	6,173
For Wales:	
Br. Str. Lady Brenda, for Mumbles Roads for orders.....	4,735

### FROM PHILADELPHIA

For Brazil:	
Br. Str. Trevarrack, for Rio Janeiro.....	—
Br. Str. Asehleigh, for Santos.....	—
For Canada:	
Nor. Str. Viborg, for Chicoutimi, Quebec.....	—
For British Isles:	
Br. Str. Ralsdale, for Queenstown.....	—
Br. Str. Flowergate, for Glasgow.....	—

### Hampton Roads Coal Dumpings\*

(In Gross Tons)			
N. & W. Piers, Lamberts Pt.:	Aug. 5	Aug. 12	
Tons dumped for week.....	276,815	224,011	
Virginian Piers, Swalls Pt.:			
Tons dumped for week.....	210,254	205,481	
C. & O. Piers, Newport News:			
Tons dumped for week.....	226,185	206,284	

\*Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

### Pier and Bunker Prices, Gross Tons

PIERS		Aug. 7	Aug. 14†
Pool 1, New York....	\$5.35@ \$5.65	\$5.40@ \$5.65	
Pool 9, New York....	4.85@ 5.10	4.85@ 5.10	
Pool 10, New York....	4.60@ 4.85	4.60@ 4.85	
Pool 11, New York....	4.35@ 4.50	4.35@ 4.50	
Pool 9, Philadelphia..	4.85@ 5.20	4.85@ 5.20	
Pool 10, Philadelphia..	4.60@ 4.85	4.60@ 4.85	
Pool 11, Philadelphia..	4.30@ 4.55	4.30@ 4.55	
Pool 1, Hamp. Roads..	4.45@ 4.55	5.00@ 5.15	
Pool 2, Hamp. Roads..	4.30@ 4.40	4.85@ 4.90	
Pool 3, Hamp. Roads..	4.20	4.25@ 4.35	
Pools 5-6-7, Hamp. Rds.	4.30	4.50@ 4.65	
BUNKERS			
Pool 1, New York....	\$5.60@ \$5.90	\$5.65@ \$5.95	
Pool 9, New York....	5.10@ 5.35	5.10@ 5.35	
Pool 10, New York....	4.85@ 5.10	4.85@ 5.10	
Pool 11, New York....	4.60@ 4.75	4.60@ 4.75	
Pool 9, Philadelphia..	5.10@ 5.35	5.10@ 5.35	
Pool 10, Philadelphia..	4.90@ 5.10	4.90@ 5.10	
Pool 11, Philadelphia..	4.55@ 4.85	4.55@ 4.85	
Pool 1, Hamp. Roads..	4.55	5.15	
Pool 2, Hamp. Roads..	4.40	4.90	
Pools 5-6-7, Hamp. Rds.	4.30	4.85	

†Advances over previous week shown in heavy type; declines in italics.

## Coming Meetings

**Fourth Annual West Virginia First-Aid Contest and First Annual Safety Day**, Camden Park, Huntington, W. Va., Aug. 21. Managing Director, W. H. Forbes, Federal Building, Huntington.

**Fifth International First-Aid and Mine-Rescue Contest**, San Francisco, Calif., during the first week of September, 1926, under auspices of Bureau of Mines, Department of Commerce.

**New York State Coal Merchants Association**. United States Hotel, Saratoga Springs, N. Y., Sept. 2-4. Executive secretary, G. W. F. Woodside, Dolan Bldg., Albany, N. Y.

**Rocky Mountain Coal Mining Institute**. Glenwood Springs, Colo., Sept. 9-11. Secretary, Benedict Shubart, Boston Building, Denver, Colo.

**American Institute of Mining and Metallurgical Engineers**. Oct. 6-9, at Pittsburgh, Pa. Secretary, H. Foster Bain, 29 West 39th St., New York City.

**National Safety Council**. Oct. 25-29, at Detroit, Mich. Managing director, W. H. Cameron, 108 East Ohio St., Chicago, Ill.

**National Industrial Traffic League**. Commodore Hotel, New York City, Nov. 17 and 18. Executive secretary, J. W. Beek, Chicago, Ill.

**Coal Mining Institute of America**. Annual meeting, Chamber of Commerce, Pittsburgh, Pa., Dec. 8, 9 and 10. Secretary, H. D. Mason, Jr., Box 604, Ebensburg, Pa.

## New Companies

Articles of incorporation have been filed by the Binkley Mining Co., Blanford, Ind. The company has an authorized capital stock of \$50,000 and is incorporated for the purpose of mining, removing and marketing coal and all other minerals. The incorporators are LeRoy G. Binkley, Hubert E. Howard and Ralph B. Mitchell.

The Jeffrey Coal Co., of Clothier, Logan County, W. Va., has been chartered to mine coal in Boone County, W. Va. The capital stock is \$10,000. The incorporators are W. F. Harless, W. P. Dalton, S. Williams and L. K. Harless, all of Clothier, and A. J. Dalton, of Huntington.

The Cherry Hill Coal Co., of Akron, Ohio, has been incorporated with a capital of 500 shares of stock, no par value designated, to mine and sell coal. Incorporators are Harvey J. Keister, Michal Nazark, Charles E. McClelland, Abner D. Zook and Michael Sophrim.

The Alma-Freeburn Coal Co., of Columbus, Ohio, has been chartered with a capital of \$25,000 to mine and sell coal. Incorporators are Ralph E. Marburger, Edwin B. Pierce, G. Sandburg, J. A. Illenberger and F. E. Falk.

The Henderson Coal Mining Co., Henderson, Ky., capital \$12,000, has been chartered by A. D. Reid, Joseph Sinclair and Tom Tate. The company has taken over a mine there, which it is operating. The mine formerly was known as the Canoe Creek mine.

## New Equipment

### Electric Hoist in Lowering Coal Down Slope Delivers Power to Line

By H. V. Haight

Chief Engineer, Canadian Ingersoll-Rand Co. Ltd., Sherbrooke, Que.

**A NEW HOIST** that in lowering coal, will deliver electric power to the line, was installed recently at one of the collieries of the British Empire Steel Corporation at Glace Bay, N. S., Canada.

The colliery is chiefly submarine, and the hoist has been installed under the sea, the distance from the shaft to the point of installation being 13,400 ft. The hoist is placed at the top of the rise, and its duty is to haul the loaded trip out of the subsidiary levels and up on the grade far enough to clear the switch points, then to lower the trip down to the main haulage levels. There the loaded trip is uncoupled, the empty trip coupled on, and the empties are hauled up the grade and lowered into the room landing. The length of slope is about 4,000 ft. Although there is a rather high load on the motor when hauling the loaded trip clear of the switch points, yet the average load, when acting as a motor, is comparatively low, and a 250-hp. motor would be sufficient. The generator load, however, when lowering the loaded trip down 4,000 ft., is fairly high and necessitated the selection of a 400-hp. motor.

The principal data as to the hoist and its duty are as follows:

Weight of empty car, pounds.....	2,400
Capacity of car, pounds.....	4,525
Number of cars in a trip.....	17
Total weight loaded trip, pounds.....	117,725
Maximum grade, per cent.....	10
Rope pull (dead load), pounds.....	15,500
Electrical conditions, 2,200 volts, 25 cycles, 3 phase	
Motor horsepower.....	400
Motor speed, r.p.m.....	750
Drum speed, r.p.m.....	83
Rope speed, feet per minute.....	1,250
Diameter of rope, inch.....	1
Diameter of drum, inches.....	50
Length of drum, inches.....	48
Rope capacity of drum, feet.....	5,000

Fig. 1 shows the way in which the hoist is being installed, and helps to explain some features of its construction. In order that the clear span of the roof might be no greater than necessary, the motor is mounted on the hoist bed, directly behind the drum. To get the hoist into place, every part had to be of such size that it would pass through a 5x6-ft. opening. That made it necessary to use double-reduction gears to keep down the diameter of the drum gear. All the electrical equipment is flameproof. To provide for quick repairs all bearings have renewable sleeves and all parts are held together by bolts, no studs being used.

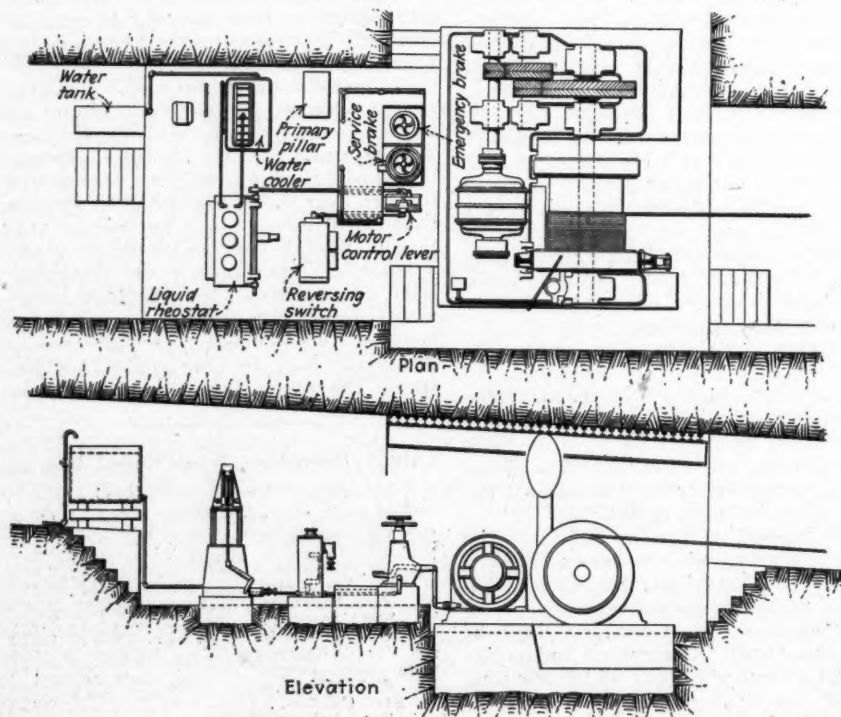


Fig. 1—Plan and Elevation Showing Hoist Room Layout

In order to keep the plant within narrow limits thus reducing the span of the roof, the motor is mounted on the same bed as the hoist directly behind the drum. All the electric equipment is flameproof. All parts are held together by bolts, no studs being used.



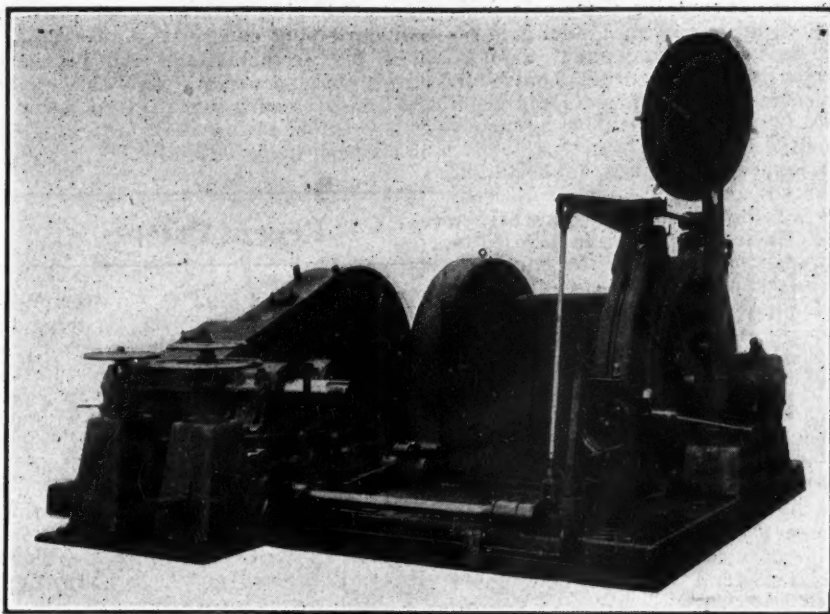


Fig. 2—Hoist of British Empire Steel Corp., Glace Bay, N. S.

Located 13,400 ft. from Shaft bottom. Length of slope served is 4,000 ft. All parts had to be of such size that they could be passed through 5 x 6 ft. opening. For this reason double-reduction gears were used to keep down diameter of drum gear.

The hoist was built by the Canadian Ingersoll-Rand Co., Ltd., at Sherbrooke, Quebec. The drum has a cast-steel barrel bolted to cast-iron spiders. Each spider has a brake path, one for the service brake and one for the emergency brake. The service brake is of the post type. The posts are of cast iron reinforced by a steel rod on the tension side. Both front and rear posts are carried on links which form a parallel motion. Equalizing rods give equal pressures all round when the brakes are set, and adjustable stops provide equal clearance when the brakes are released. The brakes are set by combined foot lever and hand wheel. When the foot lever is depressed, it makes immediate application of the brakes, and the hand wheel may then be turned to reinforce the pressure of the foot treadle and to lock the brakes.

#### DASHPOT CONTROLS BRAKE

The emergency brake is of the band type. It is set by weights, hanging below the bed, and is released by a hand wheel. The rate at which the brake is set is controlled by an oil dashpot. The oil passing from the bottom to the top of the dashpot passes through a valve on the Lilly controller, which thus controls the speed of application of the emergency brake. The emergency brake is tripped by a magnet in a safety circuit. If this circuit is opened, the armature of the magnet falls, knocking out a latch, which in turn allows a half-nut to open and the brake to set. The safety circuit will be opened by the Lilly controller in case of overwinding, overspeeding, or approaching the end of travel at too great speed. A hand-operated emergency switch is also provided for the use of the operator. The safety circuit is also connected to the primary pillar so that the motor is shut off at the same time the emergency brake is set. Service and emergency brakes are lined with Ferodo lining.

The drum is driven through a friction clutch of the Lane band type. As the load on the driving disk of the clutch is very heavy, it is made of cast steel, in halves, clamped to the shaft over a key, by heavy bolts. The fixed arm of the clutch is cast integral with one half of the disk. The loose arm is of the yoke type, so that both the pivot pin and the pin which engages with the band are supported at both ends. The clutch band is also lined with Ferodo lining. The clutch is operated by a hand wheel which is concentric with the wheel of the service brake.

To provide for the drum running free of the shaft, it is bushed with renewable bronze bushings. Lubrication of these bushings is effected by Saal fittings and an oil gun.

The driving gears are all Falk double-helical cut-steel gears and are rigidly supported by bearings close to the gears on each side. The gears are inclosed in an oil-tight case with inspection openings where the gears mesh.

All the drum-shaft bearings are of the angle type, to suit the direction of the rope pull, and are lined with bronze sleeves. They are grease-lubricated. The bearings of the intermediate shaft and the motor pinion shaft are of the ring-oiling type and have renewable babbitt-lined sleeves.

The pinion shaft is gear-driven and

the hand makes one turn in 5,000 ft. To insure accuracy in the position of the hand, in spite of any lost motion in the gearing, a constant tension is provided by means of a small rope sheave and hanging weight.

The motor was built by Canadian General Electric Co., Ltd., Toronto, Ontario. It is a 400-hp. wound-rotor induction motor. The shaft has roller bearings. The collector rings are outside the bearings and are inclosed in a flameproof case. Wire guards prevent accidental contact with the rotor. The rotor is designed to be safe at 100 per cent excess speed.

The control equipment was built by Allen West & Co., Ltd., Brighton, England. It consists of one of their LA3B liquid controllers of the moving electrode type, and oil-immersed stator reversing switch and hand-operated lever gear. It is of the inclosed flameproof type and has a capacity of 2,200 hp. minutes every quarter hour, with a continuous dissipating capacity of 150 hp., which would enable a creeping speed to be obtained continuously against 30 per cent full load torque for rope inspection purposes.

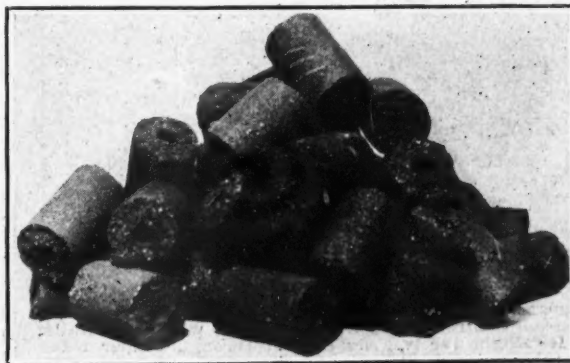
The primary switch pillar was furnished by Ferguson, Pailin, Ltd., Manchester, England, and is described as a type "B3" drawout, floor-mounting, flameproof, mining-type switch pillar.

## Mold Fine Coal Into Tubes With Rough Edges

After four years of investigation and development the McMyler-Interstate Co., Cleveland, Ohio, has developed processes and equipment to convert coal screenings and coke breeze into a fuel that can be manufactured and sold at a lower price than domestic coal. The new fuel is clean to handle, nearly smokeless, of quick ignition and long burning qualities. Its combustion is said to produce a maximum of heat, as it burns completely to a fine ash without clinker.

"Tubocol," as the new fuel will be known, will be produced in the locality where it is to be used, by local firms utilizing processes and equipment the patents for which are held by the P. E. Welton Engineering Co. The McMyler-Interstate Co., operating under equipment manufacturing and sales rights, will build this machinery in Bedford, a suburb of Cleveland. Plants will be equipped for a capacity of 1½ to 5 or 10 tons per hour, as may be desired.

The process of manufacture of Tubocol is similar to that of briquetting ex-



#### Coal Pipes

To allow flame to lick the centers of the briquets they are made short and tubular. The ends also are not molded because the flame has a better opportunity to ignite rough edges.

cept that instead of being pressed into shape the fine material after drying, pulverization and the addition of a special binder is put through a press or mill that forces it out in a tubular form, the extruded material being allowed to break off from its own weight. It is then baked for 30 minutes to one hour, which renders it strong, waterproof and clean to handle.

A plant for the manufacture of this new fuel requires only three or four men for its operation and these need not be particularly skilled as the process throughout is practically automatic. The tubular form of the new fuel and its rough edges aid its combustion materially. The binder is said also to aid in the combustibility of the fuel.

### Bureau of Mines Declares Shovels Permissible

Formal approval No. 127 of the U. S. Bureau of Mines, bearing the date of July 16, 1926, has been issued to the Myers-Whaley Co., of Knoxville, Tenn., covering permissible equipment used on this firm's Nos. 3 and 4 special sizes of shovel. This is almost the first approval granted for the use of loading machines in gassy mines.

The permissible equipment consists of a reel capable of holding 250 to 400 ft. of duplex super-service cable, the driving motor, control box, headlight and the various connections. The reel is provided with contact housings at either end, and the lead wires are carried in flexible metal conduit to the control case. The motor is similar to the type that has long been used for driving a well-known cutting machine. It has a 30-hp. 1-hr. rating which is ample for the 15 to 20 hp. required continuously for driving this machine. A triple roller chain transmits motion from the motor to the first shaft of the machine.

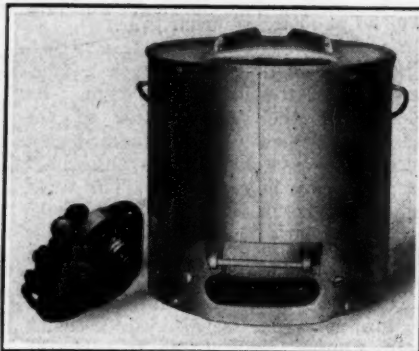
The control box is a steel casting with

3-in. walls. It contains a two-pole, multiple-fuse, drum switch, a steel grid resistance for starting and a non-reversing five-point drum controller. The controller drum is actuated from the platform of the operative by means of an oil control.

A mine-locomotive type of headlight is employed, the super-service cord leading to it being carried in flexible bronze tubing. In fact all wiring is inclosed in conduit of this kind and the entrances of such conductors to all cases or boxes are of approved construction.

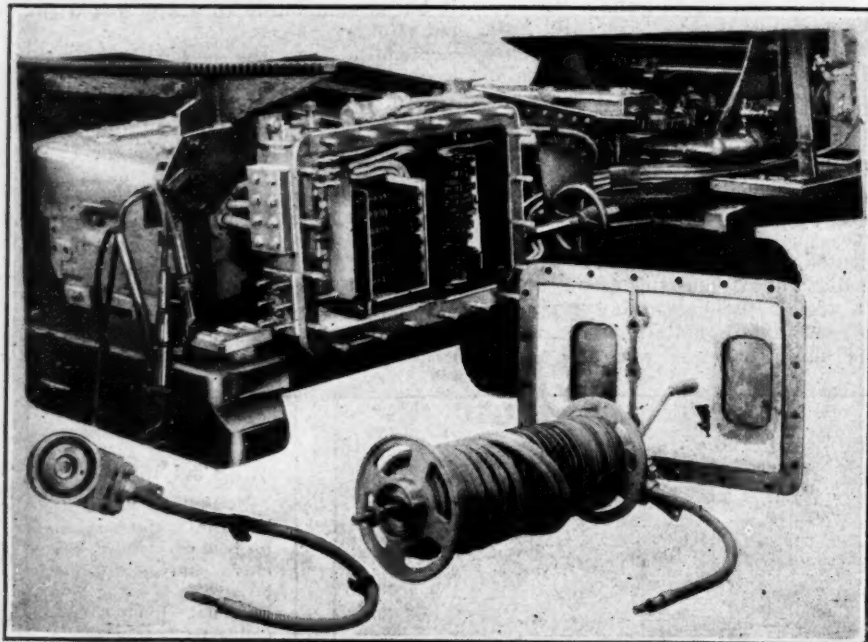
### New Pot for Melting Easily Fusible Metals

An addition has been made to the line of rapid-heating melting pots manufactured by Harold E. Trent, 259 North Lawrence St., Philadelphia, Pa. The new pot has a capacity of 10 lb. and is suitable for melting babbitt, solder, lead and tin. It is adapted for 110 and 220 volts a.c., and can be connected to a lamp socket. It will be noticed that there is a new design of



Electrically Heated Melting Pot

As the heating element can be connected to an ordinary light socket the melting pot can readily be installed. It is said that it is convenient and, being insulated, quite efficient also.



Control Box of Loader with Cover Removed

All parts liable to cause sparking are inclosed and all conductors are carried in flexible bronze tubing to the control case. Control box is a steel casting with 3 in. walls. Controller drum has oil control. Headlight receives its current through copper leads that are inclosed in flexible bronze tubing.

protected plug contacts, whereby a standard plug can be used to obtain a three-heat combination. All pots are fitted with spouts and two handles to facilitate pouring metal if so desired. The crucible is insulated, affording, it is claimed, high efficiency.

### Recent Patents

**Mine Car;** 1,579,269. Victor Wiloughby, Ridgewood, N. J., assignor to American Car & Foundry Co., New York City. April 6, 1926. Filed Jan. 24, 1925; serial No. 4,516.

**Coal Washing Process and Plant;** 1,579,295. Antoine France, Liège, Belgium. April 6, 1926. Filed Aug. 1, 1924; serial No. 729,502.

**Means and Methods for Preventing Scale and Incrustation in Steam Boilers;** 1,579,454. George S. Neeley, Wood River, Ill. April 6, 1926. Filed Mar. 12, 1925; serial No. 14,913.

**Mining-Machine Truck;** 1,579,477. Cecil Parker Folmar, Birmingham, Ala., assignor to Sullivan Machinery Co., Chicago, Ill. April 6, 1926. Filed Oct. 12, 1921; serial No. 507,335.

**Scraper;** 1,579,475. Edward J. Doberstein, Blue Island, Ill., assignor to Goodman Mfg. Co., Chicago, Ill. April 6, 1926. Filed March 17, 1923; serial No. 625,792.

**Loading Machine;** 1,579,704. Harry L. Grow, Fairbanks, Alaska. April 6, 1926. Filed Dec. 16, 1924; serial No. 756,300.

**Flotation of Minerals;** 1,579,722. Bernard M. McAtee, Miami, Ariz., assignor to The General Engineering Co., Salt Lake City, Utah. April 6, 1926. Filed Mar. 31, 1921; serial No. 457,306.

**Self-Contained Breathing Apparatus for Use in Noxious Gases;** 1,579,919. Alexander B. Dräger, Lubeck, Germany. April 6, 1926. Filed June 9, 1921; serial No. 476,238.

**Loading and Unloading Apparatus;** 1,580,556. Hans Enard, Pittsburgh, Pa., assignor to Heyl & Patterson, Inc., Pittsburgh, Pa. April 13. Filed Dec. 14, 1922; serial No. 606,805.

**Coal Gathering and Loading Machine;** 1,583,665. Walter E. Cox, Princeton, Ind. May 4, 1926. Filed July 13, 1925; serial No. 43,245.

**Skip Hoist;** 1,583,711. Charles M. Young, Jr., Philadelphia, Pa., assignor to Link-Belt Co., Chicago, Ill. May 4, 1926. Filed Sept. 8, 1925; serial No. 54,854.

**Combined Cutting and Loading Machine;** 1,583,992. Edward O'Toole, Gary, W. Va. May 11, 1926. Filed Dec. 13, 1924; serial No. 755,694.

**Apparatus for Separating Coal;** 1,584,017. Marvin W. Ditto, New York, N. Y. May 11, 1926. Filed June 2, 1922; serial No. 565,381.

**Mining Machine;** 1,585,041. Roderick MacEachen, Washington, D. C. May 18, 1926. Filed Dec. 14, 1923; serial No. 680,760.

**Automatic Reversing Device for Rope Hoists;** 1,585,492. Wm. E. Hale, Fort Washington, Pa., assignor to the R. H. Beaumont Co., Philadelphia, Pa. May 18, 1926. Filed Oct. 17, 1918; serial No. 258,613. Renewed Sept. 6, 1923.